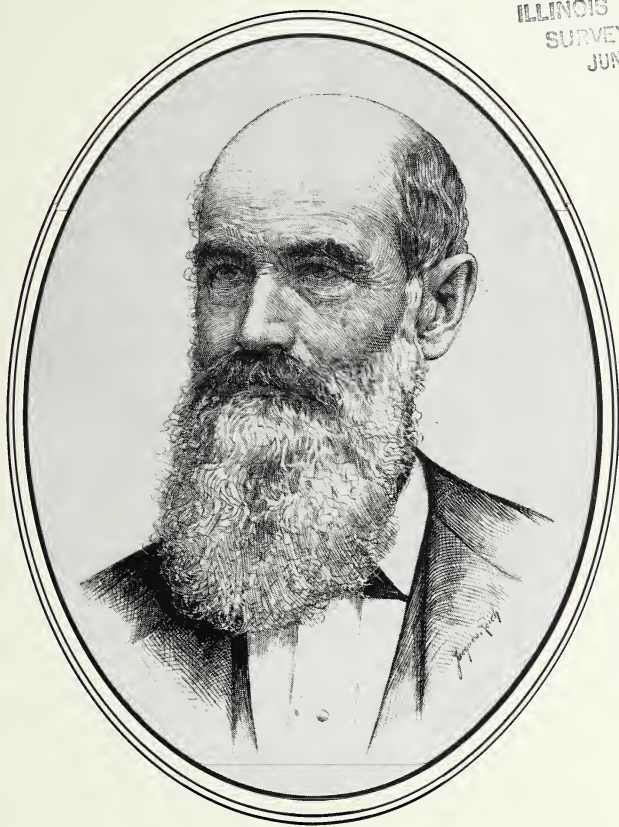
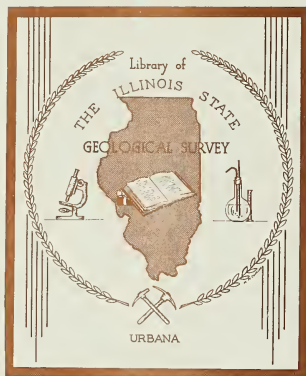


TYPE AND FIGURED FOSSILS
IN THE
WORTHEN COLLECTION
AT THE ILLINOIS STATE GEOLOGICAL SURVEY

Lois S. Kent

ILLINOIS GEOLOGICAL
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JUN 10 1982





COVER: This portrait of Amos Henry Worthen is from a print presented to me by Worthen's great-grandson, Arthur C. Brookley, Jr., at the time he visited the Illinois State Geological Survey in the late 1950s or early 1960s. The picture is the same as that published in connection with the memorial to Worthen in the appendix to Vol. 8 of the Geological Survey of Illinois, 1890.—LSK

Kent, Lois S.,

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This engraving of the "Back-bone," an outcrop of Devonian strata in Jackson County, Illinois is taken from *Geological Survey of Illinois*, Volume III, *Geology and Paleontology*, 1868, by A. H. Worthen and F. B. Meek.

TYPE AND FIGURED FOSSILS IN THE WORTHEN COLLECTION AT THE ILLINOIS STATE GEOLOGICAL SURVEY

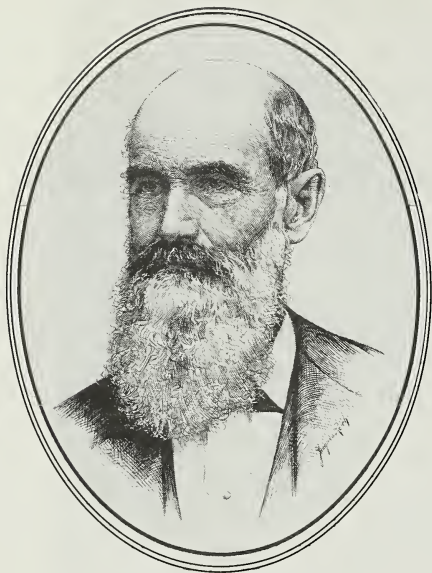
CONTENTS

Acknowledgments	2
Introduction	2
Organization of the catalog	7
Notes	8
References	8
Fossil catalog	13

ABSTRACT

This catalog lists all type and figured specimens of fossils in the part of the "Worthen Collection" now housed at the Illinois State Geological Survey in Champaign, Illinois. Materials collected and described by A.H. Worthen, State Geologist of the first Geological Survey of Illinois from 1858 to 1875 and Curator of the Illinois State Museum from 1878 to 1888, form the nucleus of the collection, which also includes specimens collected and described by other early geologists. The largest parts of the Worthen Collection are now located in three places: The Illinois State Museum in Springfield; the Department of Geology at the University of Illinois in Urbana; and the Illinois State Geological Survey. Catalogs of the collections in the first two repositories have already been published. Smaller parts of the collection are located in at least five other museums in the United States.

Each entry in this catalog contains the name under which the specimen was originally described, the geologic horizon, the locality in which it was found, the collector (if known), and a reference to the first publication in which the specimen was described or illustrated. Plate and figure numbers under each entry indicate illustrations of the specimens in the collections of the Illinois State Geological Survey. References are made to significant later publications, especially to those in which the name was changed or the specimen re-illustrated. The introduction to the catalog provides a brief account of Worthen's life and work, especially as related to the Worthen Collection, and of the early history of the first Geological Survey of Illinois.



A. H. Worthen

ACKNOWLEDGMENTS

Many people have given me valuable assistance in preparation of this catalog. My sincere thanks are due to Dr. Dennis Kolata of the Illinois State Geological Survey, who gave me much needed encouragement, made helpful suggestions during the compiling of the detailed information, and reviewed the manuscript; Dr. Alan Horowitz, of Indiana University, who also reviewed the manuscript and assisted me especially by pointing out some omissions; Kristi Komadina and Mary Krick, of the Illinois State Geological Survey library, who located and borrowed rare publications for me, and Harrell L. Strimple, of the University of Iowa, who lent me a rare publication; Dr. Robert Hansman, at the time Curator in the Department of Geology at the University of Illinois, who gave me free access to the type collections there; Dr. Daniel Blake, who assisted me more recently when it was necessary to consult the collections at the University of Illinois; and Dr. Charles W. Collinson and Dr. H. Bowen Willman, of the Illinois State Geological Survey, who have given me encouragement and valuable suggestions.

INTRODUCTION

The Illinois State Geological Survey has many type and figured specimens of fossils in what is generally known as the "Worthen Collection." Materials collected and described by A.H. Worthen comprise the nucleus of this collection, but specimens collected and described by other early geologists are also included. Much of the material was described and illustrated in the volumes issued by the first Geological Survey of Illinois, published between 1866 and 1890; the *Illinois State Museum Bulletins* 1 and 2, 1882 and 1884; the *Proceedings of the Philadelphia Academy of Natural Sciences*, 1860-1872; and James Hall's *Report of the Geological Survey of the State of Iowa*, v. 1, pt. 2, 1858, and *Supplement*, 1859.

The largest part of the Worthen Collection is now housed in three places: the Illinois State Museum in Springfield; the Department of Geology at the University of Illinois in Urbana; and the Illinois State Geological Survey in Champaign. Catalogs of the collections in the first two repositories have already been published.¹ Smaller parts of the collections and some specimens described and figured in the Geological Survey of Illinois reports are in the Museum of Comparative Zoology at Harvard University (many of Charles Wachsmuth's specimens); the United States National Museum (crinoids in the Springer Collection and Ulrich's bryozoa); the University of Michigan Museum of Paleontology, in Ann Arbor, Michigan; and the Walker Museum of the University of Chicago, now transferred to the Field Museum of Natural History in Chicago, Illinois. Two specimens (*Chaenomya maria* Worthen, SUPTC 5583 and *Actinocrinus arnoldi* Wachsmuth and Springer, SUPTC 409) formerly at Stanford University, Palo Alto, California, have been moved to the Department of Geology, California Academy of Sciences, in San Francisco.²

Amos Worthen was born in Bradford, Orange County, Vermont, October 31, 1813, the next to the youngest of 13 children. He acquired his basic education in the Vermont common schools and in the Academy in Bradford, and his physical training on his father's farm. His farm background proved to be a great asset in his life work.

In 1834 he and his young bride moved west to the vicinity of Cincinnati, Ohio. He taught for two years in the schools of Cumminsville (a town which later became a part of Cincinnati), and in June 1836 moved to Warsaw, Illinois, influenced, no doubt, by the fact that some of his wife's family had settled in this area. The move proved to be a happy choice: the geode beds and abundant fossils of the area were a great attraction to him and stimulated his interest in natural science. In Warsaw, Worthen became first a "forwarding and commission merchant" and later conducted a dry goods business. Then in 1842, influenced by the depression caused by Mormon difficulties in Hancock County, he and his family moved to Charlestown, Massachusetts. They returned to Warsaw in July 1844, and Worthen spent more and more time studying the rocks of the area and collecting mineral and fossil specimens. His nephew, N.W. Bliss, wrote that by 1850 (when he arrived in the Worthen home) the home and shop were both more of a stone shop than a drygoods store; he also noted that his uncle evidently begrudged the time spent attending to customer needs. In 1855 Worthen sold the business, determining to devote himself completely to science. By this time he had already established a system of exchanges of fossils and minerals for books and collections with correspondents in the east.

In February 1851 the Illinois Legislature authorized the first Geological Survey of the State, appropriating \$3,000 a year for this purpose. Two years later the appropriation was increased to \$5,000 a year. Dr. J.G. Norwood, a doctor of medicine and a native of Indiana, was named State Geologist, and began his work July 29, 1851. Norwood had previously worked as an assistant geologist under David Dale Owen on a geological survey of Iowa, Wisconsin and Minnesota. In the fall of the year he employed Worthen as one of two assistants.

In this account of Worthen's life and work and the history of the first Geological Survey of Illinois, I have drawn heavily on two previous publications: (1) Bliss, N.W., and Charles A. White, 1890, The private life and scientific work of Prof. Amos Henry Worthen, in Geological Survey of Illinois, v. 8, Appendix, p. 1-37; and (2) Crook, A. R., 1907, A history of the Illinois State Museum of Natural History, p. 1-20, Springfield, Illinois.

My emphasis in this introduction is on Worthen's paleontological activities, especially as they relate to the history of The Worthen Collection.—LSK.

Collecting for the new Survey was carried on vigorously during 1852 and 1853, and the collections grew in size and quality; especially as a result of Worthen's interest and industry. The collections were housed in New Harmony, Indiana at this time, and it soon became apparent that this location was inappropriate. In December 1854 the first of what were to be many moves was made.

The specimens and all museum materials were packed in boxes to be sent by boat down the Wabash 40 miles to the Ohio, 120 miles down the Ohio to the Mississippi, 140 miles up the Mississippi to St. Louis, from thence by rail 100 miles to Springfield. But cold weather filled the rivers with ice and the museum did not reach Springfield till the following April (1855). Even then it was given a cool reception since no place could be found for housing it. Finally it was stored in the Supreme Court room in the building which at that time served as State House. In a few months, in order to make room for the approaching session of the Court it was moved to the Senate Chamber where it was made accessible during the winter of '55 and '56. During the summer it was moved to the new arsenal building where new cases and drawers were provided.

But unfortunately the building was not heated and not only did the workers suffer but their reagents and ink froze and consequently during two or three months the work was given up entirely (Crook, A.R., 1907, p. 9).

In 1855 the State of Iowa passed an act authorizing a Geological Survey of that State and appointed James Hall from New York to take charge of it. The Survey started in September 1855, and Hall promptly engaged Worthen as his assistant. Worthen was employed "during the seasons for exploration until the close of 1857." Worthen lent Hall his fine collection of Carboniferous crinoids, which Hall later described (1858, 1859).

Meanwhile, dissatisfaction with Norwood's accomplishment had grown. The criticism was perhaps unfair, considering that the museum had been moved three times, and the collections had ended up in a place where it was almost impossible to work on them. In addition, appropriations for the Survey were inadequate. The total budget allotted was from \$3,500 to \$5,500 per year, which was to take care of all expenses, including the salaries of a geologist and two assistants, traveling and office expenses, and publication.

Nevertheless, it was decided that the Geological Survey should be reorganized, and on March 22, 1858 Worthen replaced Norwood as State Geologist. During his first few years as State Geologist, Worthen concentrated on preparing two geologic sections of the State, showing all the principal formations in Illinois. One section was made across the Silurian and Devonian formations of southern Illinois, from below Thebes

in Alexander County to Jonesboro in Union County; the other was made along the Mississippi River from the northern border of the State to Cairo. Subsequent study of several counties in southwestern Illinois focused on the distribution and comparative thickness of the formations and on the economic geology of these areas. Some of the county reports resulting from this work were published in the early volumes of the Geological Survey of Illinois.

Worthen's own work for the Geological Survey was greatly enhanced and supplemented by his ability to obtain the help of many of the ablest specialists of the day. Notable among these men were Leo Lesquereux in paleobotany and Carboniferous stratigraphy; J.S. Newberry, Orestes St. John, and Edward D. Cope in vertebrate paleontology; J.D. Whitney in geology and mineralogy of the lead region; E. O. Ulrich in fossil sponges and bryozoa; Oliver Everett in sponges and Hiram Prout in bryozoa; Henry Englemann in chemistry and detailed county work; and S.H. Scudder in insects.

Frederick B. Meek was a great personal friend of Worthen, and many works on invertebrate paleontology were published jointly by Meek and Worthen. S.A. Miller, Charles Wachsmuth, Frank Springer, and W. H. Barris all contributed to work on *Echinodermata*. Other assistants worthy of mention were J.V.Z. Blaney in chemical analysis and H.M. Bannister, H.C. Freeman, Frank H. Bradley, H.A. Green, James Shaw, G.C. Broadhead, and E.T. Cox in detailed county work.



From 1863 to 1870 Worthen worked at carrying out the provisions of the law of 1851 requiring the distribution of typical collections of duplicate fossil and mineral specimens among educational institutions of the state. He found this task time-consuming and difficult to implement without neglecting more important parts of the work.

The collections remained in the Arsenal. They were later moved to a rented room in the Masonic Hall until the hall was damaged by fire on February 22, 1871.

Burning of the State Geological Rooms at Springfield, Illinois.—On the night of the 22nd of February (after the 4th volume of the Illinois Geological Report, above noticed, was received by us) the building containing the State Geological Rooms and Collections was burned. The fire took in a book-binding adjoining, and, "in five minutes after the alarm was given, the upper part of the building was a sheet of flame." Professor Worthen's son, who was sleeping that night in the office, succeeded in removing all his father's library and private cabinet, before it became necessary for the engines to play upon the building. The State Collections, which contained the most complete series of Carboniferous fossils in the country, if not in the world, besides numerous other species, and many kinds unknown elsewhere, were greatly damaged by water and by hasty removal, and very many fine specimens were ruined. Since the fire they have been transferred to the basement of the new Post-Office building, which, as it is fire-proof, is safe against such disasters, and where they ought to have gone long before the fire. Fortunately, the copies of the 4th volume were in the hands of another bookbinder and escaped (Scientific Intelligence, 1871, in American Journal of Science and Arts, 3rd ser., v. 1, no. 4, p. 303).

In 1872 regular appropriations for the State Survey were

abolished; however, by special appropriations, the work was provided for until 1875, when it was discontinued. In September 1875, in his transmittal letter accompanying Volume 6 of the reports of the Geological Survey of Illinois, Worthen wrote (p. IV):

The large collection of geological specimens accumulated by the Survey remains in the condition it was left by the fire in the Masonic Hall building, where it was formerly kept, no proper place having as yet been provided for its reception, and no provision made for its preservation as a State collection. Some disposition should be made of this collection, either to preserve it as the nucleus of a State Cabinet of Natural History, or to dispose of it to some scientific institution where it would be appreciated and properly cared for.

In the same transmittal letter (p. IV-V), Worthen also wrote as follows regarding his work for the Survey:

In the prosecution of the work I have kept in view two objects that seemed to me of paramount importance, to-wit: First, the development of the material resources of the State, so far as was possible, by making known whatever matters of economical importance the field explorations should bring to light; and secondly, to bring out such scientific results as this rich and comparatively unexplored field made possible, so that the State of Illinois, through its geological survey, might contribute something towards the general stock of scientific knowledge.

Although the scientific results brought out by the survey may not be, and probably are not appreciated by our own people, nevertheless I have the satisfaction of knowing that they are elsewhere, and that the Illinois Reports are esteemed a desirable acquisition to all scientific libraries, both public and private, and the applications for this work since the distribution of the first three volumes, coming mainly from individuals and institutions directly interested in the scientific pursuits, would have consumed the entire edition published.

As the alleged reasons for withholding further appropriations to continue the work were based on the necessity of economy, and lest it might therefore be supposed, by those unacquainted with the facts, that there has been an unnecessary expenditure of money in the prosecution of this work, I deem it but just to myself to state in this connection precisely the amount that has been placed at my disposal for carrying on the Geological Survey of the State since it has been under my direction.

When the survey came under my control, in March, 1858, the annual appropriation was \$5,000 per annum, with an additional sum of \$500 per annum for topographical work. As the latter amount was entirely inadequate to the accomplishment of any practical results in topography, it was expended mainly in the construction of the State map accompanying this volume, and in drawing such county maps as the prosecution of the work rendered necessary, so that the first named sum was all the available means at command to pay the salaries of myself and my assistants in geology and palaeontology, for chemical work and chemicals, and the travelling and incidental expenses of the survey. This appropriation continued until the adop-

tion of the new constitution in 1872, when by a provision in that instrument it was abolished. In addition to this annual appropriation, the twenty-fifth General Assembly made a special appropriation of \$10,000 per annum for two years to complete the field work, and five or six additional assistants were employed for that time, and the sum so appropriated was exclusively devoted to this department of the survey.

After the expiration of the regular annual appropriation in 1872, by the constitutional provision above referred to, the twenty-seventh General Assembly appropriated the sum of \$2,000 to defray the entire expense of the Survey for one year, and the succeeding General Assembly appropriated the sum of \$3,600 per annum for two years to defray the salary of myself and assistant including office and traveling expenses, and \$1,500 to pay the cost of the drawings required to illustrate this volume. This appropriation expired on the 30th day of June, last. The two first volumes of my report were published in 1866, the third in 1868, the fourth in 1870, the fifth in 1872, and the sixth in 1875, this latter volume having been delayed nearly a year by causes already alluded to. These six volumes, averaging about 550 pages each and containing 175 full page plates besides numerous wood cuts, were brought out in about nine years on the appropriations above specified. From these facts and figures those best qualified to judge can determine, for themselves, whether or not the Geological Survey of Illinois has been conducted with due regard to economy.

During the period 1875-1877 Worthen continued his work without pay and the museum collections remained in his custody.



The question of the disposition of the museum collections remained unsettled until 1877, when a state law established a:

*State Historical Library and Natural History Museum....The law established the institution, set aside certain rooms for it, named the trustees, stated the duties of curator and librarian, provided for moving specimens, for distribution of duplicates, for transfer of material from another museum, and made appropriations for carrying the requirements into effect. Most fittingly the man who for 17 years had been State Geologist was made Curator and was partially renumera-
ted (\$1,897.50) for the two years during which he was not paid by the State, even though continuing the work.*

In the meantime the museum materials had been moved from the Masonic Hall and stored in the basement of the new Capitol building. For increasing the collections and moving \$2,500 was appropriated and the museum was transferred from the basement and established in creditable style in the west wing of the third floor of the State House. For the first time in its history it was fittingly housed (Crook, A. R., 1907, p. 11).

During the next 10 years, Worthen "selected a complete series of Carboniferous fossils for the State Museum of Natural History, out of the great mass of material brought together in the Geological Survey of the State" (Crook, 1907, p. 12). He added many specimens to the collections and increased its value

by his diligent work and careful organization.

During this period Worthen had one assistant, Fannie Fisher, who served the museum as clerk and later as assistant director from 1878 till her death in 1935, except for an interim of three years (1893-1896). She was dismissed in 1893, along with Lindahl, because of a change in political power in the State. However, she returned to the Museum later when the political power changed once again.

In 1887, against Worthen's wishes and during his absence from town, the museum was moved "by ordinary laborers who had no more idea of the value of museum materials than Geronimo had of Shakespeare" (Crook, 1907, p. 12) from the third floor of the State House to the main floor and to the basement. His successor, Josua Lindahl, wrote of the move as follows:

...You may, however, get some idea of its chaotic condition, when I tell you that the entire collections in the museum rooms had been moved in the last year of Professor Worthen's life, against his protests and in his absence from Springfield, from out of the upper floors down to the main floor of the Capitol by order of some higher authority who engaged a furniture moving concern to remove the whole museum, without the supervision of anybody who had the least idea of how scientific material should be handled. Only in exceptional cases were the labels fixed to the specimens, and none of these had any numbers written or painted on them. Labels and specimens were therefore shoved into the drawers and showcases at haphazard, and by no means always so that the labels belonged to any specimens in the same drawer. In the basement the condition was, if possible, still worse. There was no closed room assigned to the storage of the vast amount of valuable material accumulated in the course of about 35 years, but it was piled up in an open portion of the basement, and workmen of various kinds had been using the pile as a dump for rubbish under which I would never have expected such a treasury of valuable material as was finally uncovered there and removed to a separate room with door and lock, which I secured after much arguing. The assistant told me that Professor Worthen felt so grieved over the wreck of collections in the museum rooms, that he could never attempt to remedy the havoc. His health was already broken, and after his death, some months later, I found the collections in such a condition as indicated. I devoted years of assiduous work to save what could be saved (Crook, A. R., 1907, p. 12).



From the time of Worthen's death in 1888 until the present (1980) the Illinois State Museum has had eight Curators, or Chiefs (the title was changed from Curator to Chief sometime during Crook's administration, and to Museum Director during Deuel's):³

*Josua Lindahl, 1888-1893
William F.E. Gurley, 1893-1897
C.H. Crantz, 1897-1906
Alja R. Crook, 1906-1930
Arthur Sterry Coggeshall, 1931-1937
Thorne Deuel, 1938-1962
Milton D. Thompson, 1963-1976
R. Bruce McMillan, 1977-present*

Lindahl did what he could to reassemble Worthen's collections and to secure them in a locked room on the first floor of

the State House; this was an enormous task because of the great confusion resulting from the unprecedented move that had been made a year before Worthen's death. He also edited and prepared for publication Volume 8 of the Geological Survey reports, which Worthen had largely prepared but had not been able to complete. The State Historical Library was made a separate institution in 1889 and removed from Lindahl's supervision, a move which freed him for more of the museum work.



Lindahl's next large task was to prepare the exhibits for the World's Columbian Exposition which was to be held in Chicago from May through October, 1893. He began with great vigor to prepare materials that would properly exhibit the geology of the State; however, because of a change in the political party in power, he was removed from office in June 1893.

One month later William F.E. Gurley replaced him. During his tenure, Gurley published *Bulletins* 3-12 of the Illinois State Museum, and the collections were moved again—this time from the first to the third floor of the State House. These quarters were smaller and were used partly as committee rooms by the legislature.

When another change in State politics occurred in 1897, Gurley was removed and C.H. Crantz became the new Curator. During Crantz' tenure the museum was moved once again, this time to the new arsenal. Apparently, a little space was gained by the move, but at the expense of beauty and dignity of surroundings. There was no space for a workroom, and little room for arranging exhibits.

In September 1906 A.R. Crook was appointed Curator, and he served until his death. The new Illinois State Geological Survey had been organized the previous year, and this freed the Curator from the necessity of answering a great deal of correspondence relating to the economic geology of the State. Crook worked hard to obtain a building which would house the museum as well as the State Library, the State Historical Library, and the Department of Public Instruction. His proposal, first introduced in 1909, was finally approved in 1917, and by 1923 the Centennial Memorial Building was completed. In the fall of 1923 the Museum was moved into 30,000 square feet of space on the fifth floor and in the basement. In 1927 Crook wrote: "The museum now occupies 12 attractive rooms in this building and is one of the best housed state museums of the country." Crook died in 1930.

During the late 1940s and 1950s, Dr. Thorne Deuel, then Chief of the museum, was able to convince the Legislature of the need for a new building in which to house the museum. The new building was completed in June 1962 and the formal opening was held on February 4, 1963.



Worthen had been an ardent collector long before he became State Geologist and later Curator of the Illinois State Museum. Even while he held office he continued to collect for himself. This caused some criticism because of the size and value of his private collection; however, the State had shown little interest in the valuable collections and had failed to provide adequately for their care. Worthen had been paid nothing for his work from 1875 to 1877. The collections had been moved at least six times during his tenure and had gone through one fire.

After Worthen's death in 1888, his heirs wished to realize some money from what Worthen had considered his private

collection. The collection was sold to the Commission for the World's Columbian Exposition (held in Chicago from May through October, 1893). This collection and a large part of the State collection from the Illinois State Museum in Springfield were taken to Chicago.

Under the direction of Josua Lindahl, the new Curator of the Illinois State Museum, these collections and other materials were organized to represent the geology of the State and to make up an impressive exhibit that received a gold medal and a certificate. New labels in attractive calligraphy, with colored stickers to indicate the geologic age, were prepared for both collections. Prominent paleontologists, J.M. Clarke (trilobites), Carl Rominger (corals), E.O. Ulrich (mollusks), James Hall (brachiopods), Charles Wachsmuth (crinoids), Charles E. Beecher (other crustacea), and David White (plants), were brought in to check and update the nomenclature. These men revised old labels, identified numerous specimens previously undetermined, and made brief reports on the collections they examined, discussing primarily the geological and geographical distribution of the forms found within the State. Their reports were to be inserted in an eventual descriptive catalog of the exhibits; however, in the confusion accompanying the closing days of the exhibition, all the papers were lost.

After the close of the Exposition, the Illinois State Museum collections were returned to Springfield and Worthen's private collection was stored for a time in the Walker Museum of the University of Chicago until it was given to the Geology Department of the University of Illinois. At some time during William F.E. Gurley's tenure as Chief, or possibly during the time Worthen's private collection was stored at the Walker Museum, a few of the type specimens found their way into Gurley's private collection. This collection was given to the University of Chicago in 1900 and eventually was preserved in the Walker Museum collections, now housed in the Field Museum.



Worthen's private collection was eventually given to the Department of Geology of the University of Illinois. No catalog of the collection was available until sometime in the 1930s when Professor Harold Scott and others under his direction removed and segregated all the types and figured specimens they could recognize and catalogued them with a new set of numbers. A prefix of X- before the number was used to indicate a type or figured specimen. Much of the non-type material was also re-catalogued at this time with a prefix letter indicating the geologic period (A- = Cambrian, B- = Ordovician, C- = Silurian, D- = Devonian, and so on). Some types may have been inadvertently incorporated in the University of Illinois' Department of Geology general collections because they were not recognized when the re-cataloging was done.

Worthen's original handwritten catalog was later located in the Illinois State Museum, and in 1963 Milton D. Thompson, then Chief of the Museum, and Richard Leary, Curator of Geology, kindly permitted me to borrow the catalog and have it copied. This has proved invaluable because much of the catalog is in Worthen's own handwriting and contains his designation of types and indications of how many specimens he catalogued in each entry. Unfortunately, Worthen's designation of types is not consistent with modern usage, and he often indicated figured specimens only. Nevertheless, this is probably about as close as we can ever come to Worthen's original idea of types.

The entries in Worthen's catalog originally started with number 1. Subsequently, someone inserted the number 10,000

before the original number, presumably so the numbers would not duplicate those in the old Illinois State Museum catalog. As a result the same specimen may be listed in two ways, for instance, 6,432 or 16,432. Strictly speaking, Worthen's handwritten catalog should have been referred to as the "Worthen catalog" and not as the "Illinois State Museum catalog." By the time I fully realized the distinction it was not practical to go back and change all the references. In general, entries above 10,000 were those in the "Worthen catalog." Some name corrections of crinoids in Charles Wachsmuth's handwriting in this catalog were probably made by him at the time of the Columbian Exposition.

During the 1930s J. Marvin Weller of the Illinois State Geological Survey in Urbana was making considerable use of the Illinois State Museum collections. In 1936 he and the Survey obtained approval from the Museum Board to transfer the Worthen Collection from Springfield to Urbana. In 1938 and 1939 the move was finally carried out; Weller and James M. Schopf made three trips to the Museum and brought back to Urbana all the specimens of invertebrate fossils they could locate from the Worthen Collection. At the time, Weller noted that "a great many specimens are missing and over fifty invertebrate types are unaccounted for. Some of these, I hope, will turn up when the collection is carefully studied but possibly others have found their way into some of your other collections." Materials Weller did not bring to Urbana included fossil plants and some vertebrates, mostly fish teeth.

During the late 1950s or early 1960s Arthur C. Brookley, Jr. paid a visit to the Illinois State Geological Survey. He identified himself as Worthen's great-grandson and wished to see some of his great-grandfather's collections. During the course of conversation he stated that there had been a third collection that was completely lost when the house in which it was kept burned. (This was probably the family home in Warsaw, although I have not been able to confirm this.)

ORGANIZATION OF THE CATALOG

The catalog in this circular lists all type and figured specimens of fossils from the Worthen Collection now housed in the State Geological Survey in Champaign. It also includes references to significant later publications, such as those in which the specimens have been re-illustrated, the names changed or lectotypes designated, or assignments to other genera made. Although many such references have probably been missed, those that have come to my attention have been included.

In each entry the name under which a specimen was originally described is given first, followed by the geologic horizon, locality, and collector (if known). Next is the reference to the first publication in which the specimen was described or illustrated. In many cases the first description was given without illustration in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, in the *American Journal of Science*, or in the *Illinois State Museum Bulletin*. The same description was later repeated verbatim in the old reports of the Geological Survey of Illinois and illustrated there.

The plate and figure numbers under each entry indicate only illustrations of the specimens in the collections of the Illinois State Geological Survey.

The catalog number appears at the top right of each entry. ISGS as a prefix indicates the specimens are now at the Illinois State Geological Survey. ISM in parentheses indicates the old Illinois State Museum numbers that have been preserved. Under the catalog number are listed the kind of type and a

condensed reference to its illustration. The first reference is to the original author's illustration. If no plate or figure number is given here, it means that the illustration is the same as that given in the synonymy. The second reference is to a later author's work and indicates where he illustrated it and whether he designated it a lectotype or did anything to change the original designation as to kind of type.



Dates of publication of most references are simply those given on the title pages. This is not always strictly accurate: for example, the *Proceedings of the Philadelphia Academy of Natural Sciences* were commonly published during the year following that for which they were designated. However, for the purposes of this catalog, the published date was considered sufficient. Anyone involved in taxonomic research will wish to establish the actual date of publication.

Terminations of scientific names are usually those first published (as *-ensis* instead of *-ense*, or *-crinus* instead of *-crinites*) without any attempt to determine which is correct.

References to the Worthen reports of the first Geological Survey of Illinois are abbreviated to "GSI v.#:" references to the present Illinois State Geological Survey are abbreviated to ISGS. References to the United States National Museum are simply USNM; to the Geological Society of America, GSA; and to the American Museum of Natural History, AMNH.

The formations and ages are those given in the original description, on the original label, or in the old catalog. Most need to be brought up to date. This has been done in only a few instances in which subsequent work has clearly indicated what the correction should be. The authority for the change is cited.

The Worthen Collection contains many bryozoa that were described and illustrated by E.O. Ulrich in Volume 8 of the Geological Survey of Illinois reports. Some of the specimens were collected by Worthen and some by Ulrich. Unfortunately, the type material for Ulrich's bryozoa has been divided between the Illinois State Geological Survey and the United States National Museum. In a general way, all Ulrich's thin sections and some hand specimens are in the USNM; many of his hand specimens are in the ISGS. Many of the former are listed in Schuchert's 1905 catalog of the USNM collections. The catalog numbers published by Schuchert were considered more or less in the nature of acquisition numbers. In some cases, type collection numbers were assigned later, but if these were ever published, I have not seen them. Because it has been impossible to make the careful comparisons of the USNM and ISGS material that are needed, the entries for the ISGS specimens are cross-referenced with those listed in Schuchert's catalog. This should alert bryozoan scholars to the fact that they must consult both the ISGS and the USNM collections.

Some of Ulrich's illustrations were published as mirror images of the specimens. Apparently Ulrich realized, when he had completed about half his drawings, that the drawings would be reversed in the reproduction process, so he made a change in subsequent drawings. This has made the identification of his figured specimens more difficult.

Designations of kinds of types are subject to correction upon further study. There is room for discussion as to the kind of type some of these really are, especially in the case of Ulrich's bryozoa. If an author clearly had only one specimen, it is referred to as the holotype. If the author had several but figured only one, without designating a holotype, the

specimens would be considered figured and unfigured syntypes.

Worthen and Ulrich commonly referred to all figured specimens as "Type," meaning holotype, cotype or syntype, or possibly only a figured specimen. Sometimes they even marked an unfigured specimen as "Type."

When later authors have designated lectotypes from the collections, the listings are in chronological order. The specimen considered a syntype in the earliest reference is designated a lectotype in the later reference.

Unfortunately, some authors designated a holotype instead

of a lectotype from an original syntype suite; when this was noted it is given as "holotype" (lectotype). Also some "paratypes" should have been paralectotypes, and are indicated as "paratype" (paralectotype).

Over the years many errors in citations, catalog numbers, and so forth, have crept into the literature. Whenever these have been found, the corrections have been indicated. It is inevitable that some errors have been introduced in the present effort, but I hope that the advantages of having these notes published will outweigh the disadvantages.

NOTES

1. Hansman, Robert H., and Harold W. Scott, 1967, Catalog of Worthen type and figured specimens at the University of Illinois: *Journal of Paleontology*, v. 41, no. 4, p. 1013-1028.

Leary, Richard L., 1971, Catalog of Paleozoic paleozoological type and figured specimens at the Illinois State Museum: *Illinois State Academy of Science Transactions*, v. 64, no. 3, p. 254-259.

Leary, Richard L., 1976, Inventory of type and figured paleobotanical specimens in the Illinois State Museum: *Illinois State Museum, Inventory of Geological Collections*, no. 2, pt. 2, 64 p.

(Both of Leary's catalogs include material from the Worthen Collection and also material from other sources described in later reports.)

2. Geotimes, September 1977, p. 13.

3. This seems to be the only published reference in which storage in the Post Office is mentioned, but it was also noted in a letter from A.H. Worthen to F.B. Meek, Feb. 26, 1871, Meek Papers, quoted in McLure thesis, p. 162.

4. Joan Hunter gives the date as 1878, p. 456; A.R. Crook gave the date as 1881, p. 18.

5. For a fuller account of the history and accomplishments of the museum in recent years see Hunter, Joan, 1977, *The Living Museum*, p. 454-463, Illinois State Museum, Springfield.

6. The Illinois State Museum, its fifty years of service, A.R. Crook, 1927, quoted in Hunter, Joan, 1977, *Museum on the Move*, in *The Living Museum*, p. 458.

7. Letter, J.M. Veller to Thorne Deuel, March 4, 1939, on file at the Illinois State Geological Survey.

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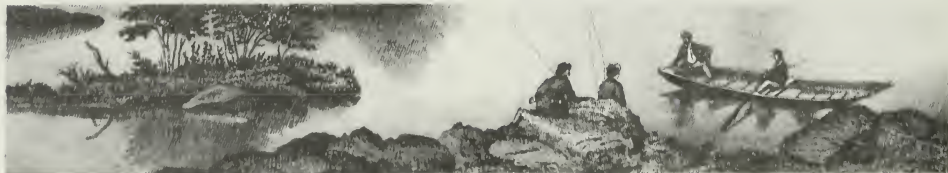
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FOSSIL CATALOG

Abrotocrinus sculptus (Worthen)
See *Poteriocrinus sculptus* Worthen

Abrotocrinus unicus (Hall)
See *Scaphiocrinus unicus* Hall

Acantherpestes
See *Euphoberia*

Acanthoceramoporella granulosa (Ulrich)
See *Ceramoporella granulosa* Ulrich

Acanthocladia fruticosa Ulrich ISGS (ISM) 4471-1
Upper Coal Measures "Type" = Syntype?
Near Springfield, = Ulrich's pl. 65, f. 2, 2 a-c
Sangamon County, Ill. = Blake's ms. pl. 1, f. 13

Ulrich, E.O., 1890, GSI v. 8, p. 635, pl. 65, f. 2, 2a-c.

Blake, D.B., 1980 (in preparation), in Treatise on Invert. Paleo.,
(G) Bryozoa, revised, manuscript pl. 1, f. 13.

Acanthotelson eveni Meek and Worthen ISGS (ISM) 3066
Coal Measures "Type" (= fig'd. syntype?)
Mazon Creek, Grundy Co., Ill.
Collected by Mr. Joseph Even of Morris

Meek, F.B., and A.H. Worthen, 1868, Am. Jour. Sci. (2), v. 46, p. 28; Meek and Worthen, 1868, GSI v.3, p. 551, text fig. A.

This specimen may be the reverse half of the specimen figured as text fig. A, above, or text fig. A may be a composite drawing. See U.I. X-344 (= ISM 11108), "Type," part and counterpart.

Acrocrinus wortheni Wachsmuth ISGS (ISM) 2469
Coal Measures Holotype
Peoria Co., Ill.
Collected by Wm. Gifford

Wachsmuth, Charles, 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 41.

Wachsmuth, Charles, and W.H. Barris, 1883, GSI v. 7, p. 343, text fig. p. 343, pl. 30, f. 13a-b.

Wachsmuth, Charles, and Frank Springer, 1897, N. Amer. Crin. Cam., p. 807, pl. 80, f. 10a-b.

= *Dinacrocrinus wortheni* (Wachsmuth). Moore, R.C., and H.L. Strimple, 1969, Univ. Kans. Paleo. Contrib. Paper 39, p. 37, f. 22, 1-3.

Actinocrinus asteriscus Meek and Worthen ISGS (ISM) 10247?
Upper Burlington limestone Unfig'd. syntype?
Lower Carboniferous
Burlington, Iowa

Meek, F.B., and A.H. Worthen, 1860, Acad. Nat. Sci. Philadelphia Proc., p. 385.

= *Actinocrinus* (*Batocrinus*) *asteriscus* Meek and Worthen, 1866, GSI v. 2, p. 207 (see also pl. 15, f. 8a-c = figured syntype).

= *Uperocrinus aequibrachiatus* var. *asteriscus* (Meek and Worthen) in Bassler and Moodey, 1943, p. 277.

Two specimens were catalogued originally; only one (unfigured) here as of 9/77. This specimen was bounced out of its tray and could possibly have been misplaced.

Actinocrinus augustatus Miller ISGS (ISM) 2594-A/B
and Gurley 2 Syntypes
Keokuk limestone; Miss.
Greene Co., Ill.
Collected by Henry Talbot

Miller, S.A., and Wm. F.E. Gurley, 1894, Ill. State Mus. Nat. Hist., Bull. 3, p. 11-13.

See also *Actinocrinus lobatus* Worthen, 1890 (not Hall, 1859) and *Actinocrinus magnificus* Wachsmuth and Springer, 1897.

Actinocrinus decornis Hall ISGS (ISM) 10280
Upper Burlington limestone; 2 Syntypes
Lower Carboniferous
Burlington, Iowa
Collected by A.H. Worthen

Hall, James, 1859, Geol. Rept. Iowa, v. 1 (2), Suppl., p. 13-14, text fig.

Number changed in catalog to 13275; changed back to 10280.

= *Dorycrinus cornigerus* (Hall) in Bassler and Moodey, 1943, p. 439.

Actinocrinus lobatus Worthen, 1890 ISGS (ISM) 2594-A/B
(not Hall, 1859) 2 figured specimens
Keokuk limestone; Miss. 2594-A = F. 8
Greene Co., Ill. 2594-B = F. 8a
Collected by Henry Talbot = Syntypes (not refigured) in Miller and Gurley

Worthen, A.H., 1890, GSI v. 8, p. 97, pl. 12, f. 8, 8a.

= *Actinocrinus augustatus* Miller and Gurley, in Miller and Gurley, 1894, Ill. State Mus. Nat. Hist., Bull. 3, p. 11.

= *Actinocrinus magnificus* Wachsmuth and Springer, 1897, N. Amer. Crin. Cam., p. 558, 568.

Name was changed in the old Ill. State Mus. catalog from *A. lobatus* to *A. magnificus* in Wachsmuth's handwriting.

Actinocrinus magnificus Wachsmuth and Springer, 1897
See also *Actinocrinus lobatus* Worthen, 1890 (not Hall, 1859), and *Actinocrinus augustatus* Miller and Gurley, 1894.

Actinocrinus plagosus Miller and Gurley ISGS (ISM) 2032-A/B
Burlington limestone; Miss. 2 Syntypes
Burlington, Iowa 2032-A = F. 5
2032-B = F. 6

Miller, S.A., and Wm. F.E. Gurley, 1894, Ill. State Mus. Nat. Hist., Bull. 3, p. 16, pl. 2, f. 5-6.

- Actinostroma* sp. ISGS (ISM) 2665
Hamilton Group; Devonian
Cerro Gordo, Iowa
Collected by A.H. Worthen
Ulrich, E.O., 1890, GSI v. 8, p. 221, pl. 7, f. 5, 5a-b.
- Actinostroma? trentonense* Ulrich ISGS (ISM) 2659
and Everett Holotype
Trenton Group
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 282, pl. 7, f. 3.
See also USNM 46545, "Figured sections of holotype...pl. 7, f. 3a-b," *fide* Schuchert's 1905 catalog.
- Actinotrypa peculiaris* (Rominger) ISGS (ISM) 7680-1/2
Keokuk Group; Miss. Figured specimen
Warsaw, Ill.
Two slides made from this specimen by T.G. Perry, 11/30/65 = 7680-1 and 7680-2.
7680-2 figured by Horowitz, Alan S., 1968, Jour. Paleo., v. 42 (2), p. 364, pl. 51, f. 3.
- Agaricocrinus? jerseyensis* (Worthen)
See *Amphoracrinus jerseyensis* Worthen
- Agassizocrinus carbonarius* Worthen ISGS (ISM) 2398
Coal Measures Holotype
Shelby Co., Ill.
Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 566, pl. 24, f. 4.
See also ISGS (ISM) 8364, also marked "Type" on label and in catalog.
= *Paragassizocrinus? carbonarius* (Worthen) in Moore and Plummer, 1940, Univ. Texas Pub. No. 3945, p. 342.
= *Paragassizocrinus tarri* (Strimble) in Ettensohn, Frank R., 1980, Jour. Paleo., v. 54 (5), p. 989, pl. 1, f. 21, 22.
- Agassizocrinus carbonarius* Worthen ISGS (ISM) 8364
Coal Measures Figured specimen
Albion, Edwards Co., Ill.
= *Paragassizocrinus tarri* (Strimble) in Ettensohn, Frank R., 1980, Jour. Paleo., v. 54 (5), p. 989, pl. 1, f. 19, 20.
The original label for this specimen was marked "Type" and carried the diamond sticker commonly used by Worthen to indicate types, but I was not able to find any published description or illustration of it until this recent one by Ettensohn. LSK, 11/80.
- Agassizocrinus hemisphericus* Worthen ISGS (ISM) 2451
Chester Ilmestone; Miss. Holotype
Randolph Co., Ill.
Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 37; Worthen, 1883, GSI v. 7, p. 316, pl. 29, f. 7a-c.
- = *Agassizocrinus papillatus* Worthen in Bassler and Moodey, 1943, p. 291.
= *Mooreocrinus hemisphericus* (Worthen) in Wright and Strimble, 1945, Geol. Mag., v. 82, p. 222.
= *Mantikocrinus hemisphericus* (Worthen) in Strimble, Harrell L., 1977 (1978), Ill. State Acad. Sci., Trans., v. 69, no. 4, p. 494-497.
- Agassizocrinus papillatus* Worthen ISGS (ISM) 2444
Chester Group; Miss. Holotype
Monroe Co., Ill.
Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 36; Worthen, 1883, GSI v. 7, p. 315, pl. 29, f. 17.
See also *Agassizocrinus hemisphericus* Worthen.
- Alisocrinus tetrarmatus* Brower ISGS 10486-A/B
"Cincinnati Group; Lower Silurian" = Paratypes
Girardeau Limestone; 10486-A = Paratype 8
Ord. (*fide* Brower) 10486-B = Paratype 9
Cape Girardeau Co., Mo.
Brower, James C., 1973, Palaeontographica Americana, v. 7 (46), p. 408. These two specimens were marked by Brower as "Paratype 8 and Paratype 9" but apparently neither was specifically mentioned in his paper. They were originally identified in the Worthen Collection as *Glyptocrinus* sp. undet.
- Allegecrinus carpenteri* Wachsmuth ISGS (ISM) 2440
Chester Group; Miss. Holotype
Monroe Co., Ill.
Wachsmuth, Charles, 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 40.
Wachsmuth, Charles, and W.H. Barris, 1883, GSI v. 7, p. 341, pl. 29, f. 14.
= *Allocatillocrinus carpenteri* (Wachsmuth) in Bassler and Moodey, 1943, p. 294.
- Allocatillocrinus carpenteri* (Wachsmuth)
See *Allegecrinus carpenteri* Wachsmuth
- Ambonichia illinoiensis* Worthen ISGS (ISM) 2286-1/2
Cincinnati Group; Ord. Syntypes
Savanna, Ill. 2286-1 = Fig. 4a
2286-2 = Fig. 4b
Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 495, pl. 23, f. 4a and 4b.
= *Ambonychia* in Treatise on Invert. Paleo., 1969, pt. N, v. 1, Mollusca 6, p. N285.
- Ampelecrinus kaskaskiensis* (Worthen)
See *Poteriocrinus kaskaskiensis* Worthen
- Ampelecrinus richfieldensis* (Worthen) (for *Aphelecrinus*)
See *Poteriocrinus richfieldensis* Worthen

- Amphicyrtoceras orcas latum*** Foerste ISGS (ISM) 8381
Racine dolomite; Sil. **Holotype**
Racine, Wis.
- Foerste, A.F., 1934, Denison Univ. Bull., v. 34 (17), (Jour. Sci. Lab., v. 29 (2)), p. 155, pl. 35, f. 1.
- Amphigenia curta*** (Meek and Worthen)
See *Stricklandinia elongata curta* Meek and Worthen
- Amphoracrinus jerseyensis*** Worthen ISGS (ISM) 2582
Kinderhook Group; Miss. **Holotype**
Jersey Co., Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 96, pl. 14, f. 8, 8a.
= *Agaricocrinus? jerseyensis* (Worthen) in Wachsmuth and Springer, 1897, N. Amer. Crin. Cam., p. 587.
- Amplexopora affinis*** Ulrich ISGS (ISM) 2689
Cincinnati Group; Ord. **Holotype**
Wilmington, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 450, pl. 36, f. 2.
1 slide prepared by June Ross about 1962-63.
See also USNM 43769, "Figured sections of holotype...pl. 36, f. 2a," *vide* Schuchert's 1905 catalog.
= *Heterotrypa affinis* (Ulrich, 1890) in Boardman and Utgaard, 1966, Jour. Paleol., v. 40, no. 5, p. 1105-1106.
- Amplexopora filiosa*** (d'Orbigny)
See *Leptotrypa filiosa?* d'Orbigny
- Amplexus geniculatus*** Worthen ISGS (ISM) 2566-A/B
Chester Group; Miss. 2 Syntypes
Pope Co., Ill. 2566-A = Pl. 10, f. 7a
Collected by A.H. Worthen 2566-B = Pl. 10, f. 7
- Worthen, A.H., 1890, GSI v. 8, p. 82, pl. 10, f. 7, 7a.
Easton, Wm. H., 1945, Jour. Paleol., v. 19 (6), p. 630, pl. 85, f. 7 (= 2566-A). Easton called 2566-A "holotype" and 2566-B "paratype."
- Anisophyllum? iovaensis*** Worthen ISGS (ISM) 2568
St. Louis Group; Miss. **Holotype**
Pella, Iowa
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 80, pl. 8, f. 7, 7a.
- Anisotrypa fistulosa*** Ulrich ISGS (ISM) 2756-1/3
St. Louis Group; Miss. Syntypes
Pella, Iowa 2756-1 = F. 6
2756-2/3 = Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 448, pl. 72, f. 6.
See also USNM 43735, "Figured sections of cotype...pl. 72, f. 6b, 6c," *vide* Schuchert's 1905 catalog.
- Anisotrypa illustris*** Ulrich ISGS (ISM) 2837
Chester Group; Miss. "Type"?
Chester, Randolph Co., Ill.
- Labelled "Type," and catalog refers to Ulrich ms. Unpublished, so far as I can tell. LSK 10/28/71. See discussion GSI v. 8, p. 448. This could be the unnamed form referred to, or the name could have been changed in final publication.
- Anisotrypa ramulosa*** Ulrich ISGS (ISM) 2851-1/4
St. Louis Group; Miss. Syntypes
Pella, Iowa 2851-1 = F. 7
2851-2 = F. 7a
2851-3/4 = Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 449, pl. 72, f. 7, 7a.
- Anolotichia ponderosa*** Ulrich ISGS (ISM) 2674
Cincinnati Group; Ord. Syntype
Wilmington, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 473, pl. 41, f. 3, 3a.
Few fragments from same specimen and 3 slides made by June Ross about 1962-63.
See also USNM 43275, "Cotype and figured sections...pl. 41, f. 3b-d," *vide* Schuchert's 1905 catalog.
See also Utgaard, John, 1968, Jour. Paleol., v. 42 (4), p. 1036, pl. 129, f. 1-5. Utgaard designated USNM 159693-A/B as lectotype and USNM 159694-159697 as paralectotypes, all taken from USNM collection number 43275; but he did not examine the ISGS specimens.
- Anthaspidella* sp.** ISGS (ISM) 2645-A/B
Trenton limestone (Ordovician): Figured specimen
Platteville, uppermost Mifflin (cut into 2 pieces)
or basal Grand Detour, *vide* Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 272, pl. 6, f. 1, 1a. The specimen is attached to the type of *Edriospongia basalis* Ulrich and Everett.
- Anthaspidella fenestrata*** Ulrich and Everett ISGS (ISM) 2649
Trenton limestone (Ordovician): **Holotype**
Platteville, uppermost Mifflin
or basal Grand Detour, *vide* Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 264, pl. 2, f. 1.
- Anthaspidella firma*** Ulrich and Everett ISGS (ISM) 2650
Trenton limestone (Ordovician): **Holotype**
Platteville, uppermost Mifflin (2 pieces)
or basal Grand Detour, *vide* Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 263, pl. 2, f. 3, 3a.

- Anthaspidella florifera*** Ulrich and Everett ISGS (ISM) 2648
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Holotype
(2 pieces)
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 259, pl. 1, f. 2; pl. 4, f. 2.
- Anthaspidella grandis*** Ulrich and Everett ISGS (ISM) 2644-1/2
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
2 Syntypes
2644-1 = Figured
2644-2 = Unfigured
- Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 259, pl. 2, f. 2, 2a.
- Anthaspidella magnifica*** Ulrich and Everett ISGS (ISM) 2654
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Holotype
(2 pieces)
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 265, pl. 8, f. 2?; 2a-c. This specimen was marked as "type" by Ulrich, but if fig. 2 was drawn from this specimen, the base of the specimen has since been broken off and is missing. LSK 10177.
- Anthaspidella mammulata*** Ulrich and Everett ISGS (ISM) 2642
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Holotype
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 258, pl. 1, f. 1, and f. 1a-d?
- Anthaspidella minimistellata*** Ulrich and Everett
See *Anthaspidella parvistellata* Ulrich and Everett
- Anthaspidella obliqua*** Ulrich and Everett ISGS (ISM) 2653
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Figured syntype
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 265, pl. 4, f. 1, a.
- Anthaspidella parvistellata*** Ulrich and Everett ISGS (ISM) 2651
Trenton limestone (Ordovician):
Platteville, uppermost Mifflin
or basal Grand Detour,
fide Dennis Kolata
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett
Holotype
- Ulrich, E.O., and Oliver Everett, 1890, in GSI v. 8, p. 260, pl. 1, f. 3. This specimen was catalogued as *A. minimistellata* but published as *A. parvistellata*.
- Anthracaris gracilis*** (Meek and Worthen)
See *Anthrapalaemon gracilis* Meek and Worthen
- Anthrapalaemon gracilis*** Meek and Worthen ISGS (ISM) 3067
Coal Measures
Grundy Co., Ill.
Figured specimen
(part and counterpart)
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 554, text f. B. This is one of the specimens on which Meek and Worthen based their composite drawing.
- = *Anthracaris gracilis* (Meek and Worthen) in Brooks, 1962, Bull. Am. Paleont., v. 44 (202), p. 174.
- Anthrapalaemon gracilis*** Meek and Worthen ISGS (ISM) 3077
Coal Measures
Grundy Co., Ill.
Figured specimen
(part and counterpart)
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 554, text fig. A. This is one of the specimens on which Meek and Worthen based their composite drawing.
- = *Anthracaris gracilis* (Meek and Worthen) in Brooks, H.K., 1962, Bull. Am. Paleont., v. 44 (202), p. 173, pl. 30, f. 1-2 (erroneously given as ISMNH 3067). Brooks calls this specimen the holotype. The holotype should be U.I. X-343 (ISM 11124), which Brooks figures, pl. 30, f. 4, and states that it bears no resemblance to the specimen drawn by Meek and Worthen (1866, pl. 32, f. 4). In Worthen's handwritten catalog, in his handwriting, ISM 11124 (U.I. X-343), part and counterpart, is designated as "type" and the reference to Meek and Worthen, 1866, pl. 32, f. 4 given.
- See also ISGS (ISM) 3067.
- Aphelecrinus columbiensis*** (Worthen)
See *Poteriocrinus columbiensis* Worthen
- Aphelecrinus okawensis*** (Worthen)
See *Poteriocrinus okawensis* Worthen
- Aphelecrinus peculiaris*** (Worthen)
See *Poteriocrinus peculiaris* Worthen
- Aphelecrinus richfieldensis*** (Worthen)
See *Poteriocrinus richfieldensis* Worthen
- Aphelecrinus* sp. cf. *A. popensis*** (Worthen)
See *Poteriocrinus popensis* Worthen
- Aphelecrinus venustus*** (Worthen)
See *Poteriocrinus venustus* Worthen
- Archaeocidaris edgarensis*** Worthen ISGS (ISM) 2477-A/C
and Miller
Upper Coal Measures
One mile east of
Baldwinsville, Edgar Co., Ill.
Syntypes
2477-A = F. 15a
2477-B = F. 15b
2477-C = F. 15c
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 337, pl. 30, f. 15a-c. Drawings are composite to some extent.

- Archaeocidaris illinoiensis** Worthen and Miller
St. Louis Limestone; Miss.
Illinois Furnace,
Hardin Co., Ill.
Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 338, pl. 31, f. 1a-b.
- ISGS (ISM) 2475-A/B
Syntypes
2475-A = F. 1a
2475-B = F. 1b
- Archaeocidaris spinoclavatus** Worthen and Miller
Coal Measures
St. Clair and
Marshall Co., Ill.
= *Archaeocidaris*? sp. undet., figured but not described.
Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, pl. 24, f. 13a-e.
Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 337, pl. 30, f. 14a-e. Illustrations are of different specimens from those figured in v. 5, even though the catalog number, 2404, was given in the text, p. 338. Specimens figured in v. 7 are missing. LSK 10/7177.
- ISGS (ISM) 2404-A/E
Syntypes
2404-A = Pl. 24, f. 13a-b
2404-B = Pl. 24, f. 13c
2404-C = Pl. 24, f. 13d
2404-D = Pl. 24, f. 13e
2404-E - Not figured
- Jackson, R.T., 1912, Boston Soc. Nat. Hist. Mem., v. 7, p. 281, pl. 15, f. 7a-h. F. 7a-e are after Worthen and Miller, 1883, pl. 30, f. 14a, d, e. F. 7f-h are after Meek and Worthen, 1873, pl. 24, f. 13a, d, e.
- Archimedes compactus** Ulrich
Chester Group; Miss.
Chester, Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 572, pl. 63, f. 2b, 2d.
See also USNM 43736, "Cotypes...pl. 63, f. 2, 2a," *vide* Schuchert's 1905 catalog.
- ISGS (ISM) 8745-2
Syntypes (on slab with 9 other species)
8745-2A = Fig. 2b
8745-2B = Fig. 2d
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 140, pl. 29, f. 1-8. Designated as lectotype the specimen figured by Ulrich, 1890, pl. 63, f. 2, but Condra and Elias did not see this specimen. USNM 43736-1 = "supplementary type" (called "neotype" in Condra and Elias' explanation of pl. 29, f. 6-7). USNM 43736-2 = "Plesiotype," in Condra and Elias, 1944, pl. 29, f. 8. Condra and Elias' numbering of USNM specimens in text differs from that on the explanation of plate.
- Archimedes distans** Ulrich
Chester Group; Miss.
Chester, Randolph Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 578, pl. 63, f. 9b.
Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 117, pl. 8, f. 5.
See also USNM 44097, "Cotypes...pl. 63, f. 9-9b," *vide* Schuchert's 1905 catalog. (But F. 9b is ISGS (ISM) 2798-1. LSK 12/13/77)
One specimen on slab include one designated by Ulrich as *A. swallowana* Hall = 2798-2 (now changed to 2798-2b). Specimen numbered 2798-2a is designated by Condra and Elias as the neotype of *A. meekanus* (Hall), figured in GSA Spec. Paper 53, p. 143, pl. 29, f. 18-20.
- ISGS (ISM) 2798-1
Syntype - Lectotype
- Archimedes halli** Condra and Elias
Keokuk Group; Miss.
Bentonsport, Iowa
Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 97-98. This was a frond exposed on the reverse of ISGS (ISM) 2785-2, *Archimedes negligens* Ulrich (Condra and Elias' paralectotype, figured pl. 14, f. 4-5). The specimen apparently was removed and is now missing (LSK, 4/3/78). Condra and Elias referred to both specimens, *A. halli* and *A. negligens*, as ISGS (ISM) 2785-2.
See also *Archimedes negligens* Ulrich.
*Archimedes invaginatus Ulrich
Chester Group; Miss.
2 miles east of Anna, Union Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 575, pl. 63, f. 11a.
Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 152, pl. 29, f. 22-24, 27.
Thin section made by Elias from fragment of same specimen. Figured pl. 29, f. 23.
See also USNM 43740, "Figured sections of cotype...pl. 63, f. 11c, 11d," *vide* Schuchert's 1905 catalog.*
- ISGS (ISM) 2779-1
Syntype - Lectotype
- Archimedes invaginatus** Ulrich
Chester Group; Miss.
2 miles east of Anna, Union Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 575.
This specimen (2 pieces) is the "plesiotype" of *A. meekanus* (Hall), designated by Condra and Elias, 1944, GSA Spec. Paper 53, p. 143-147, pl. 8, f. 8-9; pl. 29, f. 21.
- ISGS (ISM) 2779-2
Unfigured syntype? = Dunbar and Condra's "plesiotype," pl. 8, f. 8-9; pl. 29, f. 21
- Archimedes macfarlandi** Condra and Elias
Chester Group; Miss.
Chester, Randolph Co., Ill.
Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 150, pl. 8, f. 3-4; pl. 31, f. 2b, 3-4; pl. 32, f. 1.
= *Archimedes proutanus* var., Ulrich, E.O., 1890, GSI v. 8, p. 576, pl. 63, f. 11 (same specimen as figured by Condra and Elias).
Specimen is on same slab with *A. perminimus* Ulrich, ISGS (ISM) 2801-1.
- ISGS (ISM) 2801-2
Holotype
- Archimedes meekanus** (Hall)
Chester Group; Miss.
2 miles east of Anna, Union Co., Ill.
Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 143-147, pl. 8, f. 8-9, pl. 29, f. 21. This specimen was originally catalogued as *A. invaginatus* Ulrich, and may be an unfigured syntype of that species. See Ulrich, 1890, GSI v. 8, p. 575.
One thin section made by Elias from fragment of ISGS (ISM) 2779-2. Figured by Condra and Elias, 1944, pl. 29, f. 21.
- ISGS (ISM) 2779-2
"Plesiotype" - Figured specimen (2 pieces)
1 thin section

- Archimedes meekanus*** (Hall) ISGS (ISM) 2798-2a
Chester Group; Miss. *Neotype (on slab
Chester, Randolph Co., Ill. with 2798-1)
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 143, pl. 29, f. 18-20.
- *Neotype designation invalid, *vide* Perry and Horowitz, 1963, because holotype is AMNH 7888/1. Holotype figured by Perry and Horowitz, 1963, Ind. Geol. Survey Bull. 26, p. 36, 45-46, pl. 8, f. 13.
- Archimedes negligens*** Ulrich ISGS (ISM) 2785-1
Keokuk Group; Miss. Syntype - Lectotype
Bentonsport, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 569, pl. 63, f. 7.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 79-80, pl. 14, f. 1-2 (number given as 2783-1 by error on p. 79).
- Archimedes negligens*** Ulrich ISGS (ISM) 2785-2
Keokuk Group; Miss. Unfigured syntype
Bentonsport, Iowa = Condra and Elias' paratype
(paralectotype), pl. 14, f. 4-5
One thin section = pl. 14, f. 5
- Ulrich, E.O., 1890, GSI v. 8, p. 569 (specimen was part of Ulrich's material but not figured by him).
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 79, pl. 14, f. 4-5. Also as *Archimedes halli* Condra and Elias, 1944, p. 97-98. There is an apparent inconsistency in Condra and Elias' citing ISGS (ISM) 2785-2 as both *A. negligens* and as *A. halli*. A clue to the reason for this is given at the bottom of p. 98, "Fine examples of frond exposed on reverse of an Ill. G.S. specimen numbered 2785-2 and labeled *A. negligens*." Unfortunately any specimen that may have been on the reverse side of *A. negligens*, ISGS (ISM) 2785-2, was removed and not returned to the Illinois Geological Survey with the other specimens.
- Archimedes owenanus*** Hall ISGS (ISM) 2782-1
Keokuk Group; Miss. Figured specimen, pl. 63, f. 6a
Three miles northeast = Condra & Elias' lectotype,
of Quincy, pl. 14, f. 8, 11, 12, 15
Adams Co., Ill. (fide Ulrich in expl. of plates).
- Ulrich, E.O., 1890, GSI v. 8, p. 570, pl. 63, f. 6a.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 92-95, pl. 14, f. 8, 11, 12, 15.
- One thin section made by Elias from fragment of ISGS (ISM) 2782-1. Figured by Condra and Elias, pl. 14, f. 15.
- Condra and Elias designated this specimen as lectotype, but this may not be valid. See Perry, T.G., and A.S. Horowitz, 1963, Ind. Dept. Cons., Geol. Survey Bull. 26, p. 36.
- Archimedes owenanus*** Hall ISGS (ISM) 2782-2
Keokuk Group; Miss. Figured specimen, pl. 63, f. 6
Keokuk, Iowa (fide Ulrich, = Condra and Elias' paratype
in expl. of plates) (paralectotype), pl. 14, f. 7, 13
- Ulrich, E.O., 1890, GSI v. 8, p. 570, pl. 63, f. 6.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 92-95, pl. 14, f. 7, 13.
- Archimedes owenanus*** Hall ISGS (ISM) 2782-3
Keokuk Group; Miss. Unfigured specimen
Adams Co., Ill. = Condra and Elias' paratype
(paralectotype), pl. 14, f. 14
- Ulrich, E.O., 1890, GSI v. 8, p. 570. (This specimen was part of material studied by Ulrich, but was not figured by him.)
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 92-95, pl. 14, f. 14.
- Archimedes perminimus*** Ulrich ISGS (ISM) 2801-1
Chester Group; Miss. Holotype
Chester, Randolph Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 572, pl. 63, f. 13.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 129, pl. 31, f. 1, 2a. (Specimen on same slab with 2801-2, *A. proutanus* Ulrich = *A. macfarlani* Condra and Elias, holotype, pl. 31, f. 2b.)
- Archimedes proutanus*** var. Ulrich ISGS (ISM) 2801-2
Chester Group; Miss. Figured syntype
Chester, Randolph Co., Ill. = Condra and Elias' holotype
- Ulrich, E.O., 1890, GSI v. 8, p. 576, pl. 63, f. 11. Specimen on same slab with *A. perminimus* Ulrich, ISGS (ISM) 2801-1.
- See also USNM 43738, "Plesiotype...pl. 63, f. 11b," *fide* Schuchert's 1905 catalog.
- = *Archimedes macfarlani* Condra and Elias, holotype, in Condra and Elias, 1944, GSA Spec. Paper 53, p. 150, pl. 8, f. 3-4; pl. 31, f. 2b, 3-4; pl. 32, f. 1.
- Archimedes subluxus*** Ulrich ISGS (ISM) 2766-1
Chester Group; Miss. Holotype
Chester, Randolph Co., Ill. 1 thin section
- Ulrich, E.O., 1890, GSI v. 8, p. 579, pl. 63, f. 14.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 157, pl. 8, f. 7, pl. 33, f. 5-7. One thin section made by Elias from fragment of specimen and figured by Condra and Elias, pl. 33, f. 7.
- Also on same slab: ISGS (ISM) 2766-2/4, *Fenestella multispinosa* Ulrich var. *chesterensis* Condra and Elias, pl. 33, f. 1-4.
- Archimedes swallovanus*** (Hall) ISGS (ISM) 2781-1
Chester Group; Miss. Figured specimen
Chester, Randolph Co., Ill. = Condra and Elias' lectotype
1 thin section
- Ulrich, E.O., 1890, GSI v. 8, p. 574, pl. 63, f. 12a.
- Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 131, pl. 26, f. 11, 13.
- One thin section made by Elias from fragment of this specimen. Figured by Condra and Elias, pl. 26, f. 13.
- See discussion of types in Perry and Horowitz, 1963, Ind. Dept. Conserv., Geol. Survey Bull. 26, p. 48.
- Archimedes swallovanus*** (Hall) ISGS (ISM) 2781-2
Chester Group; Miss. = Condra and Elias' "paratype"
Chester, Randolph Co., Ill. (paralectotype?)
- Ulrich, E.O., 1890, GSI v. 8, p. 574.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 131, pl. 1, f. 1; pl. 26, f. 12.

Specimen is from Worthen Collection, not figured by Ulrich, but figured by Condra and Elias and called a paratype by them.

See discussion of types in Perry and Horowitz, 1963, Ind. Dept. Conserv., Geol. Survey Bull. 26, p. 48.

Archimedes terebriformis Ulrich ISGS (ISM) 2738-1
Chester Group; Miss. Syntype
Sloan's Valley, Ky. = Condra and Elias' lectotype
(*vide* Ulrich, in expl. of plates) 1 thin section

Ulrich, E.O., 1890, GSI v. 8, p. 575, pl. 63, f. 5a.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 135, pl. 4, f. 7; pl. 26, f. 18, 22, 24 (*not* pl. 3, f. 5, *nor* pl. 26, f. 17, 21 as given in expl. of plates).

One thin section made by Condra and Elias from fragment of 2738-1 and figured by them, pl. 26, f. 4.

Perry, T.G., and Alan S. Horowitz, 1963, Ind. Dept. Conserv., Geol. Survey Bull. 26, p. 49.

See also USNM 43739, "Cotypes...pl. 63, f. 5, 5b," *vide* Schuchert's 1905 catalog. Perry and Horowitz (p. 49) reported only the specimen represented by Ulrich's fig. 5b as in the USNM.

Archimedes terebriformis Ulrich ISGS (ISM) 2738-2
Chester Group; Miss. Syntype
Sloan's Valley, Ky.
(*vide* Ulrich, in expl. of plates)

Ulrich, E.O., 1890, GSI v. 8, p. 575, pl. 63, f. 5.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 135, pl. 3, f. 5 (incorrectly listed in explanation of plates as 2738-1; pl. 26, f. 17, 21 (incorrectly listed in explanation of plates as 2738-1). Pictures on pl. 3, f. 5 and pl. 26, f. 21 are identical.

Archimedes terebriformis Ulrich ISGS (ISM) 2738-3
Chester Group; Miss. Syntype
Chester, Randolph Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 575, pl. 63, f. 5c.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 135, pl. 26, f. 20, 23.

Archimedes wortheni (Hall) ISGS (ISM) 2780-1/2
Warsaw beds; Miss. 2780-1 = Ulrich's fig'd. spec.,
Warsaw, Hancock Co., Ill. pl. 63, f. 8, 8a
= Condra & Elias, pl. 3, f. 4
2780-2 = Spec. used by Condra & Elias
for measurements, p. 83

Ulrich, E.O., 1890, GSI v. 8, p. 571, pl. 63, f. 8, 8a.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 80-85, pl. 3, f. 4. ISGS (ISM) 2780-2 is part of a frond, used for measurements by Condra and Elias, p. 83.

Three specimens from the Warsaw beds, Warsaw, Ill., were catalogued in Worthen's handwritten catalog, in his handwriting, as *A. wortheni* Hall, ISM 10636, as types figured by Hall, 1858, pl. 22, f. 2-5. The specimen Hall illustrated as fig. 2 is the type of *A. reversa* Hall. Worthen's reference to the other two specimens as Hall's types must be in error, as Condra and Elias, and later Perry and Horowitz, indicate the specimens shown by Hall as f. 3-5 are in the AMNH.

It is probable that the three specimens, ISM 10636, are *A. reversa* Hall = *A. wortheni* Hall, and are the same specimens, U.I. X-18-1/3, studied by Condra and Elias. U.I. X-18-1 was figured by Condra and Elias, pl. 18, f. 1; U.I. X-18-1/3 were all used by Condra and Elias for measurements, p. 83. Condra and Elias' picture of U.I. X-18-1, called *A. wortheni* Hall, is the same as Hall's pl. 22, f. 2, figured as *A. reversa* Hall. U.I. X-18-2 is Condra and Elias' pl. 19, f. 3-4. Ulrich recognized the possible identity of *A. reversa* and *A. wortheni*; Condra and Elias considered them synonymous. These three specimens, U.I. X-18-1/3, were apparently not in the U.I. collections at the time Hansman and Scott's catalog (1967) was prepared.*

*U.I. X-18-1 was returned to the University of Illinois in October 1980. Unfortunately the upper six whorls of the specimen were missing. The specimen still carries Worthen's number 636 (or 10636).

"Type" (2 specimens) of *A. wortheni* (Hall) is AMNH 7525/1 (Hall Coll. 5058/1), *vide* Condra and Elias, 1944, p. 81, and Perry and Horowitz, 1963, p. 36. Condra and Elias designated the specimen illustrated by Hall, p. 22, f. 4a-4b, as lectotype.

Arctinurus thompsoni Miller and Unklesbay
See *Lichas boltoni* (Bigsby)

Arthroclema angulare Ulrich ISGS (ISM) 2707
Cincinnati Group; Ord. Syntype
Wilmington, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 641, pl. 29, f. 6a, 6b.

Slide on which specimen illustrated in fig. 6 was mounted is empty. Specimen presumed lost, 1/7/69.

Ascoceras southwelli Worthen ISGS (ISM) 2588
Niagara limestone; Upper Silurian Figured syntype
Port Byron, Whiteside Co., Ill.
Collected by J.H. Southwell

Worthen, A.H., 1890, GSI v. 8, p. 151, pl. 27, f. 2, 2a.

Foerste, A.F., 1930, Denison Univ. Bull., v. 30 (3), (Jour. Sci. Lab., v. 25 (1)), p. 16, pl. 8, f. 2.

Foerste called this specimen the holotype, but Worthen stated that he was figuring only the better of the two specimens he had. Presumably the other is lost. LSK, 1961.

Astylospongia? carbonaria Meek ISGS (ISM) 2909 and 12878
and Worthen 4 Syntypes
Upper Coal Measures
Springfield, Ill.

Meek, F.B., and A.H. Worthen, 1866, Chicago Acad. Sci., Proc., v. 1, p. 11 (not figured).

Compare with *Brooksella* Walcott or *Kirklandia* Caster in Treatise Invert. Paleol., Pt. F, Coelenterata, 1956, p. F21 and F70-72.

Astylospongia praemorsa Goldfuss ISGS (ISM) 11693
"Head Lanark," loose in Carroll Co., Ill. Figured specimen
(Lanark is town in sec. 5, T. 24 N.,
R. 6 E., Mt. Carroll Quad., Carroll Co., Ill.)
Probably from Niagara Group; Upper Silurian.
Collected by J.B. Christian

Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 499, pl. 25, f. 2a-b.

- Avicula longa* Geinitz sp. ISGS (ISM) 3078
Roof shales of Coal No. 7; Penn.
Danville, Ill. **Figured specimen**
(badly broken)
- Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 578, pl. 26, f. 1.
- Avicula oblonga* Meek and Worthen ISGS (ISM) 4253
Keokuk Group; Miss.
Near Warsaw, Ill. **? 2 syntypes**
- Meek, F.B., and A.H. Worthen, 1860, Acad. Nat. Sci. Philadelphia Proc., p. 454.
- = *Aviculopecten oblongus* Meek and Worthen, 1866, GSI v. 2, p. 258 (compare with pl. 18, f. 3a, 3b).
- See also U.I. X-186 (ISM 10687), which is catalogued as the specimen figured. These 2 specimens (4253) are labeled "Type" in Worthen's handwriting, but are not the specimens figured GSI v. 2, pl. 18, f. 3a, b.
- Aviculopecten chesterensis* Worthen ISGS (ISM) 2507-A/B
Chester limestone; Miss.
Chester, Ill. **Holotype,**
part and counterpart
Collected by Mrs. J.C. Salter **2507-A = Fig'd.**
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 20; Worthen, 1890, GSI v. 8, p. 115, pl. 21, f. 5, 5a.
- Aviculopecten colletti* Worthen ISGS (ISM) 2512-A/B, 13191
Keokuk shale; Miss.
Crawfordsville, Ind. **Syntypes**
2512-A = Worthen, pl. 22, f. 13
2512-B = Worthen, pl. 22, f. 8b
Collected by **= Driscoll, lectotype, pl. 19, f. 2**
Frank H. Bradley **13191 is counterpart of 2512-B**
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 22; Worthen, 1890, GSI v. 8, p. 119, pl. 22, f. 8b, 13.
- Driscoll, E.G., in N. Gary Lane, 1973, Univ. Calif. Pub. Geol. Sci., v. 99, p. 117, pl. 19, f. 2. ISGS (ISM) 2512-B is designated as lectotype. 2512-A is assigned to *Pseudaviculopecten* (?) *indianensis* (Meek and Worthen), and figured pl. 19, f. 3.
- Aviculopecten coxanus* Meek and Worthen ISGS (ISM) 3009
Coal Measures
Adams Co., Ill. **Unfigured syntype**
= Newell's paralectotype
- Meek, F.B., and A.H. Worthen, 1860, Acad. Nat. Sci. Philadelphia Proc., p. 453; Meek and Worthen, 1866, GSI v. 2, p. 326. (Pl. 26, f. 6a, b are of U.I. X-219 (ISM 10 931)).
- Newell, Norman D., 1937, State Geol. Survey Kansas, v. 10 (1), p. 56. Newell figured (pl. 4, f. 23) one of two U. of I. specimens as "holotype" (lectotype). Hansman and Scott's catalog of the U. of I. collections lists 2 specimens under U.I. X-219 as "syntypes." Newell called ISGS (ISM) 3009 "paratype" (paralectotype). Newell probably saw only one of the 2 specimens, U.I. X-219. Worthen listed 2 in his original handwritten catalog. When I (LSK) went through the U.I. type collections about 1965 I noted only 1 specimen in the tray. Later (1967) Hansman and Scott noted 2 in their catalog. Presumably they had located one which had been misplaced. LSK, 10/20/77.
- Aviculopecten edwardsi* Worthen ISGS (ISM) 2511
Keokuk limestone; Miss.
Warsaw, Ill. **Holotype**
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 22; Worthen, 1890, GSI v. 8, p. 119, pl. 22, f. 2.
- Aviculopecten elsahensis* Worthen ISGS (ISM) 2506
Kinderhook Group?; Miss.
Half a mile above Elsah, Jersey Co., Ill.
Collected by A.H. Worthen **Holotype**
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 19; Worthen, 1890, GSI v. 8, p. 115, pl. 22, f. 3.
- Aviculopecten fimbriatus* Meek and Worthen ISGS (ISM) 4355
Waverly Group; Miss.
Richfield, Summit Co., Ohio **Topotype, and possibly syntype?**
- Meek, F.B., and A.H. Worthen, 1866, Chicago Acad. Sci. Proc., v. 1, p. 15.
- Aviculopecten hardinensis* Worthen ISGS (ISM) 2591
St. Louis limestone; Miss.
Hardin Co., Ill. **Holotype**
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 117, pl. 22, f. 5, 5a.
- Aviculopecten indianensis* Meek and Worthen
See *Aviculopecten colletti* Worthen
- Aviculopecten macwhorterii* Worthen ISGS (ISM) 2583
Kinderhook Group; Miss.
Kinderhook, Ill. **Holotype**
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 118, pl. 22, f. 4.
- Aviculopecten mazonensis* ISGS (ISM) 2592-A/B, 13190
Worthen **Syntypes - Lectotype and paralectotype**
Coal Measures **2592-A = Worthen, pl. 22, f. 9**
Mazon Creek **= Newell, "holotype" (lectotype),**
Grundy Co., Ill. **pl. 4, f. 21a, b**
2592-B - Part and counterpart
= Worthen, unfig'd. syntype
= Newell, "topo-paratype"
(paralectotype), p. 57
13190 - Part and counterpart
= Newell, topotype, fig'd. pl. 4, f. 22
- Worthen, A.H., 1890, GSI v. 8, p. 117, pl. 22, f. 9. ISGS (ISM) 13190, part and counterpart, was part of Worthen's material and probably is also syntype material.
- Newell, Norman D., 1937, State Geol. Survey Kan., v. 10, p. 56, pl. 4, f. 21a, b, 22.
- Aviculopecten menardi* (Worthen)
See *Lima? menardi* Worthen
- Aviculopecten monroensis* Worthen ISGS (ISM) 2509
St. Louis Limestone; Miss.
Monroe Co., Ill. **Holotype**
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 21; Worthen, 1890, GSI v. 8, p. 114, pl. 22, f. 8, 8a.

- Aviculopecten neglectus* (Geinitz) ISGS (ISM) 4055
Coal Measures
Danville, Ill.
Figured specimen
- Meek, F.B., and A. H. Worthen, 1873, GSI v. 5, p. 589, pl. 26, f. 7b, 7c.
- See also *Euchondria neglecta* (Geinitz) in Newell, Norman D., 1937, State Geol. Survey Kansas, v. 10, p. 105.
- Aviculopecten notensis* Worthen ISGS (ISM) 2505
Keokuk limestone; Miss.
Niota, Hancock Co., Ill.
Collected by A.H. Worthen
Holotype
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 19; Worthen, 1890, GSI v. 8, p. 113, pl. 22, f. 10.
- Aviculopecten oblongus* (Meek and Worthen)
See *Avicula oblonga* Meek and Worthen
- Aviculopecten orestes* Worthen ISGS (ISM) 2504
Keokuk limestone; Miss.
Warsaw, Ill.
Collected by A.H. Worthen
Holotype
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 18; Worthen, 1890, GSI v. 8, p. 112, pl. 22, f. 6.
- Aviculopecten spinuliferus* Meek ISGS (ISM) 2508-A/B
and Worthen **Holotype, part and counterpart**
Keokuk shale; Miss.
2508-A = Worthen, pl. 22, f. 1
Crawfordsville, Ind.
= Driscoll, pl. 17, f. 9
Collected by Frank H. Bradley
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 39.
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 20; Worthen, 1890, GSI v. 8, p. 116, pl. 22, f. 1.
- Driscoll, E.G., in N. Gary Lane, 1973, Univ. Calif. Pub. Geol. Sci., v. 99, p. 116, pl. 17, f. 9.
- Aviculopecten talboti* Worthen ISGS (ISM) 2510-A/C
St. Louis limestone; Miss.
3 Syntypes
Monroe Co., Ill.
2510-A = Fig. 11a
Collected by A.H. Worthen
2510-B = Fig. 11
2510-C = Not figured
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 21; Worthen, 1890, GSI v. 8, p. 114, pl. 22, f. 11, 11a.
- Aviculopinna illinoiense* Worthen ISGS (ISM) 2529
Coal Measures
Peoria Co., Ill.
Collected by Mr. Gifford
Holotype
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 13; Worthen, 1890, GSI v. 8, p. 128, pl. 20, f. 5, 5a.
- Barycrinus crassibrachiatus* (Hall)
See *Cyathocrinus crassibrachiatus* Hall
- Barycrinus herculeus* Meek and Worthen
See *Barycrinus hoveyi* var. *herculeus* Meek and Worthen
- Barycrinus hoveyi* var. *herculeus* Meek and Worthen ISGS (ISM) 1805-B
and Worthen
Keokuk Group; Miss.
Crawfordsville, Ind.
Syntype
- Meek, F.B., and A.H. Worthen, 1868, Acad. Nat. Sci. Philadelphia Proc., p. 341; Meek and Worthen, 1873, GSI v. 5, p. 485, pl. 13, f. 2b.
- = *Barycrinus hoveyi* (Hall) Van Sant in Van Sant, J.F., and N.G. Lane, 1964, Univ. Kans. Paleo. Contrib., Echinodermata, art. 7, p. 74.
- Specimen ISM 1805, in the Ill. State Mus. in Springfield (1963), is a syntype, figured GSI v. 5, pl. 13, f. 2a.
- Barycrinus lyoni* (Hall) ISGS (ISM) 1807-A/B
Keokuk Group; Miss.
Crawfordsville, Ind.
Specimens used
for measurements
- = *Pellecrinus hexadactylus* (Lyon and Casseday) Van Sant in Van Sant, J.F., and N.G. Lane, 1964, Univ. Kans. Paleo. Contrib., Echinodermata, art. 7, p. 78.
- Barycrinus magnificus* Meek and Worthen ISGS (ISM) 1866
Keokuk Group; Miss.
Near Biggsville, Henderson Co., Ill.
Holotype
- Meek, F.B., and A.H. Worthen, 1868, Acad. Nat. Sci. Philadelphia Proc., p. 340; Meek and Worthen, 1873, GSI v. 5, p. 483, pl. 12, f. 2a, b.
- Barycrinus spectabilis* Meek and Worthen ISGS (ISM) 1891
St. Louis Group; Miss.
Otter Creek, Jersey Co., Ill.
Holotype - calyx and stem (stem in 2 pieces)
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 23; Meek and Worthen, 1873, GSI v. 5, p. 530, pl. 20, f. 8a-b.
- Barycrinus spurius* (Hall) ISGS (ISM) 13211
Keokuk limestone; Miss.
Warsaw, Ill.
Figured specimen
- Worthen, A.H., 1890, GSI v. 8, p. 99, pl. 14, f. 4, 4a.
- Baryphyllum?? arenarium* Meek ISGS (ISM) 4555-A/B
and Worthen
Oriskany Group (probably Dutch
Creek ss.); Dev.
4555-A = F. 2a
Four miles west of
4555-B = F. 2b
Jonesboro, Union Co., Ill.
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 409, pl. 9, f. 2a-b.
- Batocrinus aequibrachiatus* var. *asteriscus* (Meek and Worthen)
See *Actinocrinus asteriscus* Meek and Worthen
- Batocrinus icosidactylus* Casseday ISGS (ISM) 8184
Warsaw Limestone; Miss.
Indiana
Figured specimen
- Lane, N. Gary, 1963, Jour. Paleo., v. 37 (3), p. 695, text fig. 3B. This specimen was missing in 1967 and still in 1978. So far as we can determine, no one has seen this specimen since Lane did his work for the above paper, in which he incor-

- rectly indicated that it was a U.I. specimen. Almost the entire crinoid collection from the U.I. Dept. of Geology and the ISGS was on loan to Ray C. Moore at the Univ. of Kansas from 1954 to 1965. Apparently this specimen was not returned with the rest of the collections.
- Batocrinus unionensis* Worthen** ISGS (ISM) 2581
St. Louis Limestone; Miss. Syntype = S. Weller's
Union Co., Ill. holotype
- Worthen, A.H., 1890, GSI v. 8, p. 84, pl. 12, f. 5-5a (not pl. 13, f. 3).
= *Globocrinus unionensis* (Worthen) in Weller, Stuart, 1920, ISGS Bull. 41, p. 333, pl. 5, f. 18-19.
- Worthen figured two specimens as *Batocrinus unionensis*, one lacking arms (pl. 12, f. 5, 5a) and the other with arms (pl. 13, f. 3). In 1920 Stuart Weller called the specimen without arms the holotype of *Globocrinus unionensis* (Worthen) and stated that the other specimen (pl. 13, f. 3) was missing from the ISM collection at that time. Weller stated that the two were not conspecific and probably neither came from the St. Louis Limestone.
- Both specimens are missing now (1978). The last time anyone has seen the type of *Globocrinus unionensis* (Worthen), so far as we can determine, was between 1954 and 1958 when N. Gary Lane figured it in his doctoral thesis at the Univ. of Kansas as *Batocrinus unionensis* Worthen = *Globocrinus unionensis* (Worthen) Weller (holotype). He incorrectly designated it a U.I. specimen. Almost the entire crinoid collection from the U.I. Dept. of Geology and the ISGS was on loan to Ray C. Moore at the Univ. of Kansas at the time. So far as it is possible to determine, it was not returned with the collections, and a diligent search in recent years has failed to locate it.
- Batospongia spicata* Ulrich** ISGS (ISM) 2662-A/B
Lower Coal Measures Syntypes - type species
Seville, Fulton Co., Ill. of genus
2662-A = Pl. 6, f. 2
2662-B = Pl. 6, f. 2b
- Ulrich, E.O., 1890, GSI v. 8, p. 246, pl. 6, f. 2, 2b (2a missing).
Specimens damaged by acid—see Ulrich's note, p. 247.
- Batostoma imperfectum* Ulrich** ISGS (ISM) 2678-A/C
Cincinnati Group; Ord. Syntypes
Wilmington, Ill. 2678-A = Pl. 35, f. 3
2678-B/C - Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 460, pl. 35, f. 3.
= *Hemiphragma imperfectum* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 285.
- Two thin sections each from specimens 2678-A and 2678-B made by June Ross about 1962.
- See also USNM 44061, "Figured sections of cotypes...pl. 35, f. 3a-d," *vide* Schuchert's 1905 catalog.
- Batostoma variabile* Ulrich** ISGS (ISM) 2686-A/D
Cincinnati Group; Ord. Syntypes
Savanna, Carroll Co., Ill. 2686-A = Pl. 35, f. 4
2686-B = Pl. 35, f. 4a
2686-C/D - Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 460, pl. 35, f. 4, 4a.
= *Batostoma varians* (James) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 179.
- Also three thin sections from 2686-A made by June Ross about 1962-63.
- See also USNM 43820 and 44062, "Cotypes and figured sections...pl. 35, f. 4b-e, 5; pl. 36, f. 1," *vide* Schuchert's 1905 catalog.
- Batostoma varians* (James)**
See *Batostoma variabile* Ulrich
- Batostomella abrupta* Ulrich** ISGS (ISM) 2740
Chester Group; Miss. Syntype
Tateville, Ky.
- Ulrich, E.O., 1890, GSI v. 8, p. 435, pl. 75, f. 2.
See also USNM 43741, "Cotype and figured sections...pl. 75, f. 2a-e," *vide* Schuchert's 1905 catalog.
- Batostomella interstincta* Ulrich** ISGS (ISM) 2739
St. Louis Group; Miss. Syntype
Pella, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 434, pl. 75, f. 4, 4a. Specimen illustrated in pl. 75, f. 4b-c, is missing.
See also USNM 43742, "Figured sections of cotype...pl. 75, f. 4d, 4e," *vide* Schuchert's 1905 catalog.
- Batostomella nitidula* Ulrich** ISGS (ISM) 2836
Chester Group; Miss. Syntype
Randolph Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 436, pl. 75, f. 3, 3a. (Specimen is labeled *B. asperata* Ulrich, but this must have been a manuscript name, changed before publication.)
See also USNM 43743, "Figured section of cotype...pl. 75, f. 3b," *vide* Schuchert's 1905 catalog.
- Batostomella simulatrix* Ulrich** ISGS (ISM) 2677
Cincinnati Group; Ord. Syntype
Sterling, Whiteside Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 432, pl. 35, f. 1c.
= *Eridotoma simulatrix* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 238.
- See also USNM 43744, "Cotypes and figured sections...pl. 35, f. 1, 1a-b, 1d-g," *vide* Schuchert's 1905 catalog.
- Baylea adamsi* (Worthen)**
See *Pleurotomaria adamsi* Worthen
- Baylea giffordi* (Worthen)**
See *Pleurotomaria adamsi* Worthen
- Beecheria bovidens* (Morton)**
See *Terebratula bovidens* Morton
- Belemnosporgia fascicularis* Ulrich** ISGS (ISM) 2664-1/2
Lower Carboniferous Syntypes
Burlington, Iowa 2664-1 = Pl. 3, f. 2, 2a
2664-2 - Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 248, pl. 3, f. 2, 2a.

See also USNM 46577, "Cotype...pl. 3, f. 2b," *vide* Schuchert's 1905 catalog.

***Blothrocirinus cultidactylus* (Hall)**
See *Poteriocirinus cultidactylus* Hall

***Brachyspirifer? hemicyclus* (Meek and Worthen)**
See *Spirifer hemicyclus* Meek and Worthen

***Bythotrypa epidermata* (Ulrich)**
See *Crepipora epidermata* Ulrich

***Calathium? (Zittellella?) infelix* Ulrich** ISGS (ISM) 2658
and Everett **Holotype**
Trenton Group; Ord.
Lee Co., Ill.

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 274, pl. 5, f. 1, 1a.

***Calceocrinus bradleyi* Meek and Worthen** ISGS (ISM) 1809
Keokuk Group (Borden Group); Miss. **Holotype**
Crawfordsville, Ind.

Meek, F.B., and A.H. Worthen, 1869, Acad. Nat. Sci. Philadelphia Proc., p. 73; Meek and Worthen, 1873, GSI v. 5, p. 502, pl. 14, f. 9.

= *Halysiocirinus bradleyi* (Meek and Worthen, 1869) in Moore, R.C., 1962, Univ. Kansas, Paleo. Contrib., art. 4, p. 33, text f. 7J.

= *Halysiocirinus bradleyi* (Meek and Worthen, 1869) in Van Stan and Lane, 1964, Univ. Kansas, Paleo. Contrib., art. 7, p. 69, text f. 25, 1a-b.

***Calloporella? nodulosa* Ulrich** ISGS (ISM) 2699-3
Cincinnati Group; Ord. **Holotype**
Savanna, Carroll Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 418, pl. 33, f. 4, 4a.

***Camerophoria giffordi* Worthen** ISGS (ISM) 2467
Middle Coal Measures **Holotype**
Near Alta, Peoria Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 39; Worthen, 1883, GSI v. 7, p. 318, f. a-c.

***Carbonarca gibbosa* Meek** ISGS (ISM) 3034-A/E
and Worthen **Syntypes**
Coal Measures **3034-A - Figured, pl. 33, f. 6a-b**
LaSalle Co., Ill. **3034-B/E - Unfigured**

Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 40.

Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 531, pl. 33, f. 6a-b.

***Cardiomorpha pellaensis* Worthen** ISGS (ISM) 2516
St. Louis limestone; Miss. **Holotype**
Pella, Iowa
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 16; Worthen, 1890, GSI v. 8, p. 126, pl. 19, f. 9, 9a, 9b.

***Catilloocrinus bradleyi* Meek and Worthen** ISGS (ISM) 2400
Keokuk Group (Borden Group); Miss. **Holotype**
Crawfordsville, Ind.
Collected by Prof. Frank H. Bradley
of Hanover College

Meek, F.B., and A.H. Worthen, 1868, Acad. Nat. Sci. Philadelphia Proc., p. 343; Meek and Worthen, 1873, GSI v. 5, p. 504, pl. 14, f. 10a-b.

= *Eucatilloocrinus bradleyi* (Meek and Worthen) in Van Stan and Lane, 1964, Univ. Kansas Paleo. Contrib., art. 7, p. 69, pl. 1, f. 1.

***Centrocrinus tennesseensis* Worthen** ISGS (ISM) 13276
Niagara Group; Silurian **Holotype**
Near Clifton, Wayne Co., Tenn.

Worthen, A.H., 1890, GSI v. 8, p. 95, pl. 14, f. 1.

= *Hormocrinus tennesseensis* (Worthen) in Springer, 1920, The Crinoida Flexibilia, p. 167. (Type species of genus *Hormocrinus*).

***Centronella billingsiana* Meek** ISGS (ISM) 2168-A/C
and Worthen **Syntypes · Lectotype**
Upper Silurian **and paralectotypes**
(Edgewood Group, **2168-A = M&W text f. A-C**
Leemon Fm., Ord., **= Amsden, lectotype, pl. 17, f. 2b-d, 2f**
vide Amsden) **2168-B = M&W pl. 6, f. 5a-c??**
Alexander Co., Ill. **= Amsden, paralectotype, pl. 17, f. 2a**
2168-C = M&W pl. 6, f. 5a-c??
= Amsden, paralectotype, pl. 17, f. 2e, 2g

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 352, text f. A-C, pl. 6, f. 5a-c. (Text f. A-C = 2168-A. Pl. 6, f. 5a-c may be 2168-B or 2168-C, but it is impossible to be sure. LSK 2/16/78)

= *Whitfieldella billingsiana* (Meek and Worthen). Savage, T.E., 1913, Ill. Geol. Survey Bull. 23, p. 134, pl. 7, f. 11-12. U.I. X-897 is specimen figured by Savage, *vide* Amsden, but Savage called the specimen illustrated in f. 11 "Type," which should have meant it was one of Meek and Worthen's specimens.

= *Whitfieldella billingsiana* (Meek and Worthen, 1868). Amsden, T.W., 1974, Okla. Geol. Survey Bull. 119, p. 72, pl. 17, f. 2-6. Designates 2168-A as lectotype. (Amsden, p. 72, line 15 incorrectly refers to lectotype as ISM 2168-B. Should be ISGS (ISM) 2168-A, as in expl. of pls.)

***Centronelloidea rowleyi* (Worthen)**
See *Terebratula rowleyi* Worthen

***Ceramoporella granulosa* Ulrich** ISGS (ISM) 2898
Cincinnati Group; Ord. **"Type" = Holotype**
Wilmington, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 466 (sections only figured), pl. 41, f. 2, 2a).

See also USNM 43227, "Figured sections of holotype...pl. 41, f. 2, 2a," *vide* Schuchert's 1905 catalog.

= *Acanthoceramoporella granulosa* (Ulrich) in Utgaard, John, 1968, Jour. Paleol., v. 42 (6), p. 1451. Utgaard designated as lectotype USNM 159715 and as paralectotypes USNM 159715-159717, all from USNM Collection number 54554. Note that this is not the collection number listed by Schuchert. Utgaard did not examine the ISGS specimen, believed to be Ulrich's "the type specimen," or holotype.

- Ceramoporella stellata* Ulrich ISGS (ISM) 2702
Cincinnati Group; Ord. **Holotype**
Kane Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 465, pl. 41, f. 1, 1a.
- Ulrich's label, glued to the specimen, gives locality as Kane Co., 4 miles north of Fayetteville. Published locality is Sterling, Ill. (Whiteside Co.)
- Ceraticaris? sinuatus* Meek and Worthen ISGS (ISM) 13242-A
Coal Measures **Holotype**
Grundty Co., Ill.
- Meek, F.B., and A.H. Worthen, 1868, Am. Jour. Sci. and Arts (2), v. 46, p. 22; Meek and Worthen, 1868, GSI v. 3, p. 540, text f. A.
- = *Ceraticaris? (Colpocaris) sinuatus* Meek and Worthen, in Meek, 1872, Acad. Nat. Sci. Philadelphia Proc. for 1871, p. 332.
- = *Concavicularis sinuata* (Meek and Worthen) in Rolfe, 1969, in Treatise on Invert. Paleo., pt. R, Arthropoda 4, p. R317, f. 1a.
- Originally catalogued in the Ill. State Mus. catalog as No. 2866, but later, for a reason unknown to me, changed to No. 13242-A.
- ISGS (ISM) 13242-B = *Concavicularis rostellata* Rolfe, 1969, in Treatise on Invert. Paleo., pt. R, Arthropoda 4, p. R317. (Rolfe's description of his new species, *C. rostellata*, has not been published other than in the Treatise as of April 1978. LSK)
- Chainodictyon laxum* var. *minor* Ulrich ISGS (ISM) 4453
Coal Measures **Holotype**
Seville, Fulton Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 640, pl. 62, f. 3, 3a.
- See also USNM 44085, "Plastotype...pl. 62, f. 3, 3a," fide Schuchert's 1905 catalog.
- Cholaster peculiaris* Worthen and Miller ISGS (ISM) 2480
"From the second division of the Chester Limestone;" Miss. **Holotype**
Okaw Bluffs, between Chester and Kaskaskia, Randolph Co., Ill.
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 329, pl. 31, f. 4a, b.
- Spencer, W.K., and C.W. Wright, 1966, in Treatise on Invert. Paleo., pt. U, Echinodermata 3 (1), p. U95-96, f. 83-1a, b.
- Chonetes maclurea* Norwood and Pratt ISGS (ISM) 4571-1/5
Hamilton Group; Dev. **Syntypes**
"Devil's Backbone," **4571-1 = Figured**
Jackson Co., Ill. **4571-2/5 = Unfigured**
- Norwood, J.G., and Henry Pratt, 1854, Acad. Nat. Sci. Philadelphia Jour., p. 28, pl. 2, f. 8a-c.
- Specimen 4571-1 was identified by G. Arthur Cooper in 1943 as the one figured by Norwood and Pratt.
- May = *Devonoconetes*, according to Muir-Wood, Helen M. 1962, The Chonetoida, British Mus. Nat. Hist., p. 46.
- Chonetes smithi* Norwood ISGS (ISM) 2951, 2951-A
and Pratt **2951-A = Figured specimen**
Roof of Belleville coal; **21 other specimens not figured**
Coal Measures
St. Clair Co., Ill.
- Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 570, pl. 25, f. 11.
- = *Neochonetes*, according to Muir-Wood, Helen M., 1962, The Chonetoida, British Mus. Nat. Hist., p. 88 (not p. 89, lines 11-12, which state that *C. smithi* is a *Chonetinella*).
- Clinopistha levis* Meek and Worthen
See *Clinopistha radiata* var. *levis* Meek and Worthen
- Clinopistha radiata* (Hall) ISGS (ISM) 2586
Coal Measures **Figured specimen**
Mercer Co., Ill.
Collected by Tyler McWhorter
- Worthen, A.H., 1890, GSI v. 8, p. 122, pl. 19, f. 3, 3a; pl. 21, f. 2?
- Note by E.O. Ulrich, dated 1892, with this specimen: "It seems to me that Worthen intended to describe this as a new species. I doubt very much that it is identical with Hall's sp. *Clinopistha radiata*. Fig. in vol. 5."
- Clinopistha radiata* var. *levis* Meek ISGS (ISM) 2993-A/G
and Worthen **Syntypes**
2993-A probably = pl. 27, f. 7a-c
(c written e on plate)
= McAlester's paratype A
(paralectotype), pl. 4, f. 6, 10, 13
2993-B probably = pl. 27, f. 7d-e
(e written c on plate)
= McAlester's paratype B
(paralectotype), pl. 4, f. 5, 16
2993-C = McAlester's paratype C
(paralectotype), pl. 4, f. 7, 11, 14
2993-D = McAlester's paratype D
(paralectotype), pl. 4, f. 4, 12
2993-E = McAlester's paratype E
(paralectotype), pl. 4, f. 9
2993-F = McAlester's paratype F
(paralectotype), pl. 4, f. 8
2993-G = pl. 27, f. 7f (labeled 7c on plate)
= Lectotype, McAlester's pl. 4, f. 1-3, 15
- Meek and Worthen's original description, 1870, reads "Near base of Coal-measures, Seaville County, Illinois." The label with the specimens reads "Coal Measures. Peoria and Fulton Cos., Ill." Meek and Worthen's description, 1873, reads "Roof of Coals Nos. 4 and 5 of the Illinois section, in Fulton County, and in the shafts at Springfield." (Springfield is in Sangamon County.)
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia, Proc., p. 44; Meek and Worthen, 1873, GSI v. 5, p. 584, pl. 27, f. 7a-f.
- = *Clinopistha levis* Meek and Worthen In McAlester, A. Lee, 1968, GSA Memoir 105, p. 20, pl. 4, f. 1-16.
- Errors in labeling the Illustrations on Meek and Worthen's plate and a later error by McAlester in correcting them have created considerable confusion. McAlester designated as lectotype the specimen shown as f. 7f on Meek and Worthen's pl. 27. The designation 7f is clear in Meek and Worthen's explanation of the plate, but on the plate itself the illustration is labeled 7c, though McAlester said it was labeled 7e. LSK, 11/18/80.

- Cnemidium? trentonensis* Worthen IGS (ISM) 12093
Lower division of the Trenton limestone; Ord. **Holotype**
3 miles northeast of Dixon, Lee Co., Ill.
Collected by Oliver Everett.
- Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 491, text figs. p. 491 and 492 (figures very poorly drawn).
- = *Zittella trentonensis* (Worthen) sp. in Worthen and Everett, 1890, GSI v. 8, p. 270.
- See also IGS (ISM) 2643, *Zittella trentonensis*, marked "Type," but not figured nor described so far as I have been able to tell. LSK, 11/22/61.
- Cockroach* (abdomen), gen. and IGS (ISM) 4941
sp. indeterminate **Figured specimen**
Coal Measures
Olney, Ill.
Collected by V.E. Phillips.
- Scudder, S.H., 1895, U.S.G.S. Bull. 124, p. 25-26, pl. 12, f. 8-11.
- Coeloconus granosus* Ulrich IGS (ISM) 2831-2
Chester Group; Miss. **Syntype**
2 miles east of Anna, Union Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 665, pl. 72, f. 3.
- See also USNM 44093, "Cotype...pl. 72, f. 3a, 3b," *fide* Schuchert's 1905 catalog.
- Colpocaris chesterensis* Worthen IGS (ISM) 2496
Chester limestone; Miss. **Holotype**
Chester, Ill.
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 3; Worthen, A.H., 1890, GSI v. 8, p. 153, pl. 28, f. 2.
- = *Concavicularis* (pro *Colpocaris*) Rolfe, W.D. Ian, 1961, Jour. Paleo., v. 35 (6), p. 1243.
- = *?Dithyrocaris chesterensis* (Worthen) Rolfe, W.D. Ian, 1962, personal communication.
- Colpocaris sinuatus* (Meek and Worthen)
See *Ceratiocaris? sinuatus* Meek and Worthen
- Compaster formosus* Worthen and Miller IGS (ISM) 2476
Chester limestone; Miss. **Holotype**
Okaw Bluffs, between Chester and Kaskaskia, Randolph Co., Ill.
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 327, pl. 31, f. 2a-b.
- Spencer, W.K., and C.W. Wright, 1966, in Treatise on Invert. Paleo., pt. U, Echinodermata 3, p. U74, f. 65-1a.
- Concavicularis*
See *Colpocaris*
See *?Dithyrocaris chesterensis* (Worthen)
- Concavicularis rostellata* Rolfe IGS (ISM) 2955
Coal Measures
Henry Co., Ill. **"Holotype," part and counterpart**
- Rolfe, W.D. Ian, 1969, in Treatise on Invert. Paleo., Pt. R, Arthropoda 4 (1), p. R317, f. 1b. This was published in the
- Treatise and called "holotype" there, but Rolfe's full description has not been published as of May 1978.
- This specimen was erroneously listed in the Ill. State Mus. catalog as *Elleticus anthracinus* Scudder.
- Concavicularis sinuata* (Meek and Worthen)
See *Ceratiocaris? sinuatus* Meek and Worthen
- Conocardium parrishi* Worthen IGS (ISM) 13284
"Oolitic limestone of upper Coal Measures" **Holotype**
Near Kansas City, Mo.
Collected by W.J. Parrish of Leavenworth, Kan.
- Worthen, A.H., 1890, GSI v. 8, p. 112, pl. 20, f. 7.
- Catalog number 2605 was published for this specimen, p. 112, v. 8, but that number was entered in the old Ill. State Mus. catalog and also published for *Zaphrentis pellaensis*, p. 74. The number for *C. parrishi* was later changed to 13284.
- Constellaria parva* Ulrich IGS (ISM) 2703-A/C
Cincinnati Group; Ord. **3 Syntypes**
Wilmington, Ill. **2703-A = Figured**
2703-B/C - Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 424, pl. 34, f. 1.
- Also two slides from 2703-A made by June Ross about 1962-63.
- See also USNM 43747, "Figured sections of holotype...pl. 34, f. 1a, 1b," *fide* Schuchert's 1905 catalog.
- Conularia chesterensis* Worthen IGS (ISM) 2489
Chester limestone; Miss. **Figured syntype**
Chester, Randolph Co., Ill.
- Worthen, A.H., 1883, GSI v. 7, p. 325; Worthen, 1890, GSI v. 8, p. 134, pl. 11, f. 9, 9a.
- This specimen was called "type" in the old Ill. State Mus. catalog, and is the only specimen figured by Worthen, but he mentions having others when he described the species. Their present whereabouts is unknown. LSK 2/27/78.
- Coolinia propinqua* (Meek and Worthen) Amsden
See *Hemipronites subplanus* Conrad? Meek and Worthen
- Coscinium elegans* Prout
See *Glyptopora elegans* (Prout)
- Coscinium latum* Ulrich IGS (ISM) 2773
Burlington limestone; Miss. **Syntype**
Burlington, Iowa (incorrectly given as Henderson Co., Ill., in explanation of plates)
Collected by A.H. Worthen
- Ulrich, E.O., 1890, GSI v. 8, p. 497, pl. 76, f. 7.
- See also USNM 43746, "Cotypes...pl. 76, f. 7a, 7b," *fide* Schuchert's 1905 catalog.
- Cosmetocrinus richfieldensis* (Worthen)
See *Potriocrinus richfieldensis* Worthen

Crassaluna epidermata (Ulrich)
See *Crepipora epidermata* Ulrich

Crepipora epidermata Ulrich IGS (ISM) 2901-1/2
Cincinnati Group; Ord. **Syntype**
Wilmington, Ill. 2901-1 = f. 1
2901-2 = f. 1a, b

Ulrich, E.O., 1890, GSI v. 8, p. 471, pl. 40, f. 1, 1a-b.

= *Bythotrypa epidermata* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 217.

= *Crassaluna epidermata* (Ulrich) in Utgaard, John, 1968, Jour. Paleo., v. 42 (4), p. 1039. *Crepipora epidermata* Ulrich, 1890, is type species for Utgaard's new genus. These two specimens were part of Ulrich's original material but were not examined by Utgaard in his 1968 study. Utgaard designated USNM 159700 as lectotype and USNM 159701-159703 as paralectotypes, all from USNM collection number 43229.

See also USNM 43229, "Cotypes and figured sections...pl. 40, f. 1c-e," *vide* Schuchert's 1905 catalog.

Crepipora hemisphaerica Ulrich IGS (ISM) 2897
Cincinnati Group; Ord. **Syntype**
Wilmington, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 472, pl. 40, f. 5.

See also Utgaard, John, 1968, Jour. Paleo., v. 42 (6), p. 1449 (species to be reassigned to a new genus).

= *Papillalunaria hemisphaerica* (Ulrich) in Utgaard, John, 1969, Jour. Paleo., v. 43 (2), p. 291. This specimen was part of Ulrich's original material but was not examined by Utgaard in his 1968-69 study.

See also USNM 43234, "Cotype and figured sections...p. 40, f. 5a-b," *vide* Schuchert's 1905 catalog.

Crepipora simulans Ulrich IGS (ISM) 2716
Cincinnati Group; Ord. **Unfigured syntype?**
Covington, Ky.

Ulrich, E.O., 1890, GSI v. 8, p. 470 (pl. 39-40).

This specimen was labeled "type" on one Ill. State Mus. label, but not in Ulrich's handwriting. Possibly an unfigured syntype?

See also USNM 43230, "Cotypes and figured sections...pl. 39, f. 4, 4a; pl. 40, f. 3, 3a," *vide* Schuchert's 1905 catalog.

Spjeldnaes, Nils, 1963, Jour. Paleo., v. 37 (1), p. 64-68.

Utgaard, John, 1968, Jour. Paleo., v. 42 (6), p. 1449.

Cullicocrinus? girardeauensis Brower IGS (ISM) 8258-B
Girardeau limestone; Ord. **Holotype**
Orchard Creek, 2 miles S. of
Thebes, SE 1/4 NW 1/4 sec. 21,
T. 15 S., R. 3 W., Alexander Co., Ill.

Brower, James C., 1973, Palaeontographica Americana, v. 7 (46), p. 398-400, text fig. 27, pl. 68, f. 1. (Catalog number given incorrectly as Worthen Coll. IGS 8528 on p. 400, column 2.)

Specimen on small slab with *Apiocystites?*, *Dendrocrinus?* n. sp. aff. *D.?* *naviculolum* Miller and several unidentified small crinoids.

Cyathaxonia profunda (Worthen)
See *Lophophyllum profundum* Worthen

Cyathocrinus multibrachiatus (Lyon and Casseday)
See *Cyathocrinus multibrachiatus* Lyon and Casseday

Cyathocrinus crassibrachiatus Hall IGS (ISM) 1834
Keokuk Group; Miss. **Holotype**
Warsaw, Hancock Co., Ill.

Hall, James, 1859, Rept. Geol. Survey Iowa, v. 1 (2), Supplement, p. 60.

= *Barycrinus crassibrachiatus* (Hall) in Meek and Worthen, 1868, Acad. Nat. Sci. Philadelphia Proc., p. 340.

Cyathocrinus meekianus (Shumard)
See *Poteriocrinus meekianus* Shumard

Cyathocrinus multibrachiatus Lyon IGS (ISM) 10173
and Casseday **Figured specimen**
Keokuk Group; Lower Carboniferous
Crawfordsville, Ind.
Collected by L.H. Corey

= *Cyathocrinites multibrachiatus* (Lyon and Casseday) in Van Sant and Lane, 1964, Univ. Kans. Paleo. Contrib., art. 7, p. 80, pl. 3, f. 5.

Cycloceras niagarensis (Hall) IGS (ISM) 7762-C
Racine dolomite; Sil. **Figured specimen**
Bridgeport, Ill.

Foerste, August F., 1928, Denison Univ. Bull., v. 28 (10), (Jour. Sci. Lab., v. 23 (7)), p. 266, pl. 57, f. 1; pl. 75, f. 10.

Cyclopora discoidea Prout
See *Proutella discoidea* (Prout)

Cyclopora? perversa Ulrich IGS (ISM) 4484
Keokuk Group; Miss. **Syntype**
Greene Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 676, pl. 69, f. 3?

See also USNM 43400, "Figured section of cotype...pl. 69, f. 3-b," *vide* Schuchert's 1905 catalog.

The IGS specimen is labeled in Ulrich's handwriting as "Type. Pl. 69, fig. 3," and is catalogued in the old Ill. State Mus. catalog as "Type." It is probably the specimen from which the USNM slides were made.

Cyclopora spinifera Ulrich IGS (ISM) 4451
Keokuk Group; Miss. **Syntype**
Warsaw, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 675, pl. 69, f. 1.

See also USNM 43745, "Figured sections of cotype...pl. 69, f. 1a-1c," *vide* Schuchert's 1905 catalog.

The IGS specimen is labeled in Ulrich's handwriting "Type. Pl. 69, fig. 1," and is probably the hand specimen from which the USNM sections were made.

- Cyclotrypa communis* (Ulrich)
See *Fistulipora communis* Ulrich
- Cydocrinus concinnus* (Meek and Worthen)
See *Poteriocrinus* (*Zeacrinus*?) *concinnus* Meek and Worthen
- Cypriocardia? randolphensis* Worthen ISGS (ISM) 2491-A/B
Chester limestone; Miss. **Syntypes**
Randolph Co., Ill. **2491-A = Spec. fig'd.**
- Worthen, A.H., 1883, GSI v. 7, p. 326.
= *Sanguinolites randolphensis* (Worthen) in Worthen, 1890, GSI v. 8, p. 130, pl. 20, f. 1, 1a.
- Cystodictya lineata* var. *major* Ulrich ISGS (ISM) 2764
Keokuk Group; Miss. **Holotype**
Warsaw, Ill. This horizon and locality were probably an error for St. Louis limestone, Alton, Ill., *vide* E.O.U., p. 496.
- Ulrich, E.O., 1890, GSI v. 8, p. 495, pl. 76, f. 3.
- Cystodictya nitida* Ulrich ISGS (ISM) 2737
Keokuk Group; Miss. **Syntypes**
Bentonsport, Iowa **(1 small slab)**
- Ulrich, E.O., 1890, GSI v. 8, p. 493, pl. 76, f. 4 (and 4a-c?).
- Dalmania danae* Meek and Worthen
See *Dalmanites danae* (Meek and Worthen)
- Dalmanites* (*Odontocephalus*) ISGS (ISM) 4595-1/3
aegeria (Hall)? **Figured specimens**
Oriskany Group **4595-1 = F. 4a**
4 miles west of Jonesboro, **4595-2 = F. 4c**
Union Co., Ill. **4595-3 = F. 4b**
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 417, pl. 10, f. 4a-c.
- Labels with 4595-3 gave "Trenton Group, Dunleith, Ill.," but this is surely an error, and the specimen must have come from the same place as 4595-1 and 4595-2.
- Dalmanites danae* (Meek and Worthen) ISGS (ISM) 2184-1/5
Upper Silurian **Syntypes**
Alexander Co., Ill. **2184-1 = F. 1a**
2184-2 = F. 1d, 1e
- = *Dalmania danae* Meek and Worthen, 1865, Acad. Nat. Sci. Philadelphia, Proc. p. 264.
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 363, pl. 6, f. 1a, 1d, 1e.
- (Figs. 1b and 1c could possibly be a composite drawn from 2184-3 and 2184-4, but this is not obvious and there are discrepancies.)
- Dalmanites tridentiferus* (Shumard) ISGS (ISM) 8505-A/D
Upper Silurian **Figured specimen**
Bailey's Landing, Perry Co., Mo. **8505-A = F. 16**
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 391, pl. 7, f. 16.
= *Synphoroides*?
- Specimen has been further cleaned and the underside of the complete cephalon is now exposed.
- Dasciocrinus similis* (Worthen)
See *Poteriocrinus similis* Worthen
- Decadocrinus depressus* (Meek and Worthen)
See *Scaphiocrinus depressus* Meek and Worthen
- Decadocrinus fountainensis* (Worthen)
See *Poteriocrinus fountainensis* Worthen
- Decadocrinus grandis* Wachsmuth and Springer
See *Poteriocrinus coreyi* Worthen
- Dekayella singularis* (Ulrich)
See *Heterotrypa singularis* Ulrich
- Dendrocrinus angustatus* (Meek and Worthen)
See *Homocrinus angustatus* Meek and Worthen
- Dendrocrinus?* n. sp. aff. ISGS (ISM) 8258-C
D.? navigolum Miller **Spec. referred to in text**
Girardeau limestone; Ord.
Orchard Creek, 2 miles S. of Thebes, SE 1/4 NW 1/4 sec. 21, T. 15 S., R. 3 W., Alexander Co., Ill.
- Brower, James C., 1973, Palaeontographica Americana, v. 7 (46), p. 457.
- Specimen on small slab with *Apiocystites*?, *Culicocrinus*? *girardeauensis* Brower, and several unidentified small crinoids.
- Dentalium illinoiense* Worthen ISGS (ISM) 2488
Chester limestone; Miss. **Holotype**
Chester, Ill.
- Worthen, A.H., 1883, GSI v. 7, p. 325; Worthen, 1890, GSI v. 8, p. 145, pl. 23, f. 1.
- = *Plagioglypta illinoiense* (Worthen) in Yochelson and Sanders, 1967, U.S.G.S. Bull. 1210, p. 17.
- Devonochonetes*
See *Chonetes maclurea* Norwood and Pratt
- Dichocrinus expansus* Meek ISGS (ISM) 1814-A/B, 1815
and Worthen **Syntypes (3)**
Keokuk Group; Miss. **1814-A = Pl. 14, f. 1a**
Crawfordsville, Ind. **1814-B - Not figured**
1815 = Pl. 14, f. 1b-c
- Meek, F.B., and A.H. Worthen, 1868, Acad. Nat. Sci. Philadelphia, Proc., p. 344; Meek and Worthen, 1873, GSI v. 5, p. 500, pl. 14, f. 1a-c. (Name *D. stelliformis* was suggested in text, p. 502, for ISGS (ISM) 1815.)

= *Dichocrinus polydactylus* Casseday and Lyon, 1862, Am. Acad. Arts and Sci., Proc. v. 5, p. 18.

= *Paradichocrinus polydactylus* (Casseday and Lyon, 1862) in Springer, Frank, 1926, U.S. Nat. Mus. Proc., v. 67, art. 9, p. 51.

= *Paradichocrinus polydactylus* (Casseday and Lyon, 1862) in Van Sant, Jan F., 1964, Univ. Kans. Paleo. Contrib., Echinodermata, art. 7, p. 124. Van Sant used specimens ISGS (ISM) 1814 (1814-A?) and 1815 for measurements given in table, p. 125.

Dichocrinus ficus Casseday and Lyon, 1862 ISGS (ISM) 2399
Keokuk Group; Miss. Figured specimen
Crawfordsville, Ind.

Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 502, pl. 14, f. 5a, b.

Van Sant, Jan F., 1964, in Univ. Kans. Paleo. Contrib., Echinodermata, art. 7, p. 121. Specimen used for measurements.

Dichocrinus polydactylus Casseday and Lyon
See *Dichocrinus expansus* Meek and Worthen

Dichocrinus stelliformis Meek and Worthen
See *Dichocrinus expansus* Meek and Worthen

Dichotrypa elegans Ulrich ISGS (ISM) 2758-1/3
St. Louis Group; Miss. 3 Syntypes
Monroe Co., Ill. 2758-1 = Pl. 76, f. 8a

Ulrich, E.O., 1890, GSI v. 8, p. 500, pl. 76, f. 8a.

See also USNM 43749, "Cotypes...pl. 76, f. 8, 8b, 8c, 8d," *fide* Schuchert's 1905 catalog.

Dichotrypa flabellum (Rominger) ISGS (ISM) 2847-1/6
Warsaw beds; Miss. Figured and unfigured spec.
Spergen Hill, Ind. 2847-1 = Pl. 77, f. 1, 1a
2847-2 = Pl. 77, f. 1b?

Ulrich, E.O., 1890, GSI v. 8, p. 501, pl. 77, f. 1, 1a, 1b?

Dichotrypa grandis Ulrich ISGS (ISM) 2672
Niagara Group Holotype
Near Wilmington, Will Co., Ill. Pl. 42, f. 1, 1a

Ulrich, E.O., 1890, GSI v. 8, p. 498, pl. 42, f. 1, 1a.

Also two slides made from this specimen by June Ross about 1962-63.

See also USNM 44088, "Figured sections of holotype...pl. 42, f. 1b-1e," *fide* Schuchert's 1905 catalog.

Dichotrypa intermedia Ulrich ISGS (ISM) 2755
St. Louis Group; Miss. Holotype? or Syntype?
Alton, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 500, pl. 76, f. 9, 9a.

See also USNM 43748, "Figured sections of cotypes...pl. 76, f. 9b, 9c," *fide* Schuchert's 1905 catalog.

Dielasma boidens (Morton)
See *Terebratula boidens* Morton

Dielasma rowleyi (Worthen)
See *Terebratula rowleyi* Worthen

Dinacrocrinus wortheni (Wachsmuth)
See *Acrocrinus wortheni* Wachsmuth

Dinotocrinus salteri (Worthen)
See *Poteriocrinus salteri* Worthen

Diplopore? bifurcata Ulrich ISGS (ISM) 4469-1
Chester Group; Miss. Syntypes
Chester, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 637, pl. 62, f. 12, 12a. Two out of three specimens shown as fig. 12 are on this slab. The third may be.

= *Diploporearia bifurcata* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 233.

Diploporearia biserialis Ulrich ISGS (ISM) 2820-9
Seville ls.; Coal Measures
Seville, Fulton Co., Ill. Syntypes

Ulrich, E.O., 1890, GSI v. 8, p. 637, pl. 62, f. 11 (and 11a-c?). Several specimens on small slab, two of which (marked 9) are probably those figured.

= *Diploporearia biserialis* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 233.

Diploporearia bifurcata (Ulrich)
See *Diplopore? bifurcata* Ulrich

Diploporearia biserialis (Ulrich)
See *Diploporearia biserialis* Ulrich

Discina varsoviensis Worthen ISGS (ISM) 2545-A/B
Keokuk limestone; Miss. Syntypes
Warsaw, Ill. 2545-A = Worthen, pl. 11, f. 7
Collected by A.H. Worthen = Weller, pl. 1, f. 24
2545-B = Weller, pl. 1, f. 23

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 23; Worthen, 1890, GSI v. 8, p. 102, pl. 11, f. 7.

= *Orbiculoida varsoviensis* (Worthen) in Weller, Stuart, 1914, I.S.G.S. Mon. 1, p. 41, pl. 1, f. 23-24.

Discocystis kaskaskiensis (Hall)
See *Echinodiscus optatus* Worthen and Miller

Dithyrocaris carbonarius Meek and Worthen ISGS (ISM) 4037
Coal Measures Holotype,
Danville, Ill. part and counterpart

Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia, Proc., p. 55; Meek and Worthen, 1873, GSI v. 5, p. 618, pl. 32, f. 1a-b.

?*Dithyrocaris chesterensis* (Worthen)
See *Colpocaris chesterensis* Worthen

Dizygocrinus intermedius (Wachsmuth and Springer)
See *Eretmocrinus varsoviensis* Worthen

Dorycrinus cornigerus (Hall)
See *Actinocrinus decornis* Hall

Dorycrinus decornis (Hall)
See *Actinocrinus decornis* Hall

Dystactospongia minor Ulrich and Everett ISGS (ISM) 2667
Twenty-five feet above the base of the Trenton ls. **?Holotype or ?Unfigured syntype**
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 278.

This does not appear to be the specimen figured (pl. 8, f. 3, 3a, 3b), but was marked "type." Possibly it was broken to obtain material for sections, the base trimmed considerably after the illustration was drawn, and the parts glued back together; or it may be one of the specimens referred to in the footnote, p. 279.

See also USNM 46554, "Figured sections of holotype...pl. 8, f. 3a-b," *vide* Schuchert's 1905 catalog.

Dystactospongia rudis Ulrich and Everett ISGS (ISM) 2646
Twenty-five feet above the base of the Trenton limestone **Holotype (2 pieces)**
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 279, pl. 8, f. 4.

See also USNM 46555, "Figured sections of holotype...pl. 8, f. 4a," *vide* Schuchert's 1905 catalog.

Echinodiscus optatus Worthen and Miller ISGS (ISM) 2478
Chester Group; Miss. **Holotype**
Pope Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 336, pl. 31, f. 9.

= *Discocystis kaskaskiensis* (Hall) in Bell, B.M., 1976, N.Y. State Mus. and Sci. Service Memoir 21, p. 244-251, pl. 47, f. 6-8.

Edmondia illinoiensis Worthen ISGS (ISM) 2503
Keokuk limestone; Miss. **Syntype**
Warsaw, Ill.

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 18; Worthen, 1890, GSI v. 8, p. 122, pl. 18, f. 7, 7a (not f. 6. Specimen figured as f. 6, pl. 18 missing as of 2/22/61. LSK).

Edmondia varsoviensis Worthen ISGS (ISM) 2502
Keokuk limestone; Miss. **Holotype**
Warsaw, Ill.

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 18; Worthen, 1890, GSI v. 8, p. 121, pl. 20, f. 11, 11a.

Ediocrinus pocilliformis? Hall ISGS (ISM) 1585
Upper Silurian **Figured specimen?**
Bailey's Landing, Mo.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 370, pl. 7, f. 5a?, 5b? This may be the specimen figured by Meek and Worthen, although it is not so marked and it is very difficult to be sure.

Edriospongia basalis Ulrich ISGS (ISM) 2645-A/C
(and *Anthaspidella* sp.) **Syntypes**
Twenty-five feet above the base of the Trenton ls. **2645-A/B = two halves of same specimen = F. 1, 1a**
Near Dixon, Lee Co., Ill. **2645-C = F. 1b**
Collected by Dr. Oliver Everett

Ulrich, E.O., 1890, GSI v. 8, p. 272, pl. 6, f. 1, 1a, 1b.

Anthaspidella sp. deposited on surface of the *Edriospongia*.

Elerodoceras indianense (Miller)
See *Orthoceras crebristriatum* Meek and Worthen

Endelocrinus fayettensis (Worthen)
See *Eupachyrinus fayettensis* Worthen

Eopatelliocrinus latibrachiatus Brower ISGS (ISM) 8272-A
Girardeau limestone; Ord. **Paratype #30**
Two miles above Thebes, Alexander Co., Ill.
(Probably Orchard Creek exposure, *vide* Brower, 1969).

Brower, James C., 1973, *Palaeontographica Americana*, v. 7 (46), p. 333. This specimen was used by Brower and labeled by him "Paratype #30," but apparently it was not specifically mentioned nor figured by him in his report. It was originally identified in the Worthen Collection as *Ptychocrinus splendens* (S.A. Miller).

Eratocrinus orbicularis (Hall)
See *Eupachyrinus orbicularis* (Hall)

Eratocrinus pikensis (Worthen)
See *Zeacrinus pikensis* Worthen

Eretmocrinus casedayanus Miller and Gurley ISGS (ISM) 8305
Holotype
(Published as *E. lyonanus* by error, but corrected by printed slip tipped in opposite p. 17.)
Upper Burlington; Miss.
Near Burlington, Iowa

Miller, S.A., and Wm. F.E. Gurley, 1894, Ill. State Mus. Nat. Hist., Bull. 3, p. 17, pl. 3, f. 1.

= *Eretmocrinus remibrachiatus expansus* Wachsmuth and Springer, 1897, *vide* Bassler and Moodey, 1943, p. 458.

Eretmocrinus lyonanus Miller and Gurley
See *Eretmocrinus casedayanus* Miller and Gurley

Eretmocrinus remibrachiatus expansus Wachsmuth and Springer
See *Eretmocrinus casedayanus* Miller and Gurley

Eretmocrinus varsoviensis Worthen ISGS (ISM) 2459
Lower part of Warsaw limestone; Miss. **Holotype**
Warsaw, Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 30; Worthen, 1883, GSI v. 7, p. 306, pl. 28, f. 14.

= *Dizygocrinus intermedius* (Wachsmuth and Springer, 1881) *vide* Lane, N. Gary, 1963, *Jour. Paleol.*, v. 37 (3), p. 699. (Not *Dizygocrinus originarius* Wachsmuth and Springer, 1897).

- Eridotrypa appressa* (Ulrich)
See *Monotrypella appressa* Ulrich
- Eridotrypa simulatrix* (Ulrich)
See *Batostomella simulatrix* Ulrich
- Ethelocrinus bassetti* (Worthen)
See *Eupachyrinus bassetti* Worthen
- Eucalyptocrinus* sp. indet. IGS (ISM) 1591-A/B
Upper Silurian 1591-A = Figd. spec.
Bridgeport, Cook Co., Ill.
- Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, pl. 24, f. 2, 2a (no description in text). Catalogued in the Ill. State Mus. catalog as *E. splendidus*? Troost, a nomen nudum.
- Eucatillocrinus bradleyi* (Meek and Worthen)
See *Catillocrinus bradleyi* Meek and Worthen
- Euchondria menardi* (Worthen)
See *Lima? menardi* Worthen
- Euchondria neglecta* (Geinitz)
See *Aviculopecten neglectus* (Geinitz)
- Eumicrotus hawni* var. *sinuata* Meek and Worthen
See *Pseudomonotis hawni* var. *sinuata* (Meek and Worthen)
- Euomphalus pernodosus* Meek and Worthen
See *Straparollus (Euomphalus) pernodosus* Meek and Worthen
- Euomphalus planodorsatus* Meek and Worthen IGS (ISM) 4093-1/2
Syntypes
Thompson's Quarry, Chester, 4093-1 = Pl. 24, f. 2a, 2b
Randolph Co., Ill. 4093-2 = Pl. 24, f. 2c
Chester Group;
Lower Carboniferous
- Meek, F.B., and A.H. Worthen, 1860 (1861), Acad. Nat. Sci. Philadelphia, Proc., p. 462.
- = *Straparollus planidorsatus* (Meek and Worthen), 1866, GSI v. 2, p. 302, pl. 24, f. 2a-c.
- = *Straparollus (Euomphalus) planodorsatus* (Meek and Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 219.
- Eupachyrinus bassetti* Worthen IGS (ISM) 1904
Syntype
Coal Measures. Vandalia coal shaft,
from a bed of black argillaceous
shaly limestone at the depth of about
230 feet, and probably near the horizon
of the No. 10 coal.
Vandalia, Fayette Co., Ill.
- Worthen, A.H., in Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 528, pl. 32, f. 2 (not f. 2a). Name was changed in Ill. State Mus. catalog to *E. verrucosus* White and St. John by Charles Wachsmuth (= *Parulocrinus verrucosus* (White and St. John), *vide* Bassler and Moodey, 1943, p. 471).
- = *Ethelocrinus bassetti* (Worthen) in Moore and Plummer, 1940, Univ. Texas Pub. No. 3945, p. 377.
- Eupachyrinus boydi* Meek and Worthen IGS (ISM) 2439
Chester limestone; Miss. Figured specimen
Monroe Co., Ill.
- Worthen, A.H., 1883, GSI v. 7, pl. 29, f. 3.
- Holotype is U.I. X-138 (ISM 10054) and is specimen figured by Worthen, 1873, GSI v. 5, p. 554, pl. 21, f. 6a-b, and by Sutton, A.H., and Virgil D. Winkler, 1940, Jour. Paleol., v. 14 (6), p. 550, pl. 67, f. 16, 17. The specimen listed in Leary's 1971 catalog of the Ill. State Mus. Nat. Hist. types as *E. boydi* Meek and Worthen (ISM 2443) is the type of *E. asperatus*. The name had been changed to *E. boydi* in the old handwritten catalog, but this must have been an error. LSK 3/14/78.
- Eupachyrinus fayettensis* Worthen IGS (ISM) 1905-A/B
Upper Coal Measures 1905-A = Holotype fig'd. by
Hickory Creek, Fayette Worthen, v. 5, pl. 24, f. 10a-b
Co., Ill. & Moore & Plummer
pl. 2, f. 7; pl. 16, f. 3
1905-B = Figured specimen,
fig'd. by Moore & Plummer,
pl. 16, f. 2
- Meek, F.B., and Worthen, A.H., 1873, GSI v. 5, p. 565, pl. 24, f. 10a-b.
- Moore, R.C., and F.B. Plummer, 1940, Univ. Texas Pub., Contrib. to Geol., no. 3945, p. 297, pl. 2, f. 7; pl. 16, f. 2-3.
- = Genotype of *Endelocrinus* = *Endelocrinus fayettensis* (Worthen) in Moore and Plummer, 1940.
- Two specimens on one slab, only one of which was seen by Worthen. The other was exposed by subsequent cleaning (see note in Moore and Plummer's description).
- Eupachyrinus monroensis* Worthen IGS (ISM) 2447
Chester Group; Miss. Holotype
Monroe Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 34; Worthen, 1883, GSI v. 7, p. 312, pl. 29, f. 16. Name was changed in Ill. State Mus. catalog to *Graphiocrinus monroensis*.
- = *Intermediocrinus monroensis* (Worthen) in Burdick, D.W., and H. L. Strimple, 1969, Univ. Kans. Paleo. Contrib., Paper 40, p. 5.
- Eupachyrinus orbicularis* (Hall) IGS (ISM) 8257
Keokuk limestone; Miss. Figured specimen
Keokuk, Iowa
A.H. Worthen Collection
- Worthen, A.H., 1890, GSI v. 8, p. 97, pl. 14, f. 2, 2a.
- Originally catalogued in Ill. State Mus. Nat. Hist. catalog as *Zeacrinus orbicularis*.
- Species described by Hall as *Scaphiocrinus orbicularis*, 1861, Jour. Boston Soc. Nat. Hist., v. 7, p. 311.
- = *Eratocrinus orbicularis* (Hall), *vide* Bassler and Moodey, 1943, p. 471.
- Eupachyrinus? sancti-ludovici* Worthen IGS (ISM) 2579
St. Louis limestone; Miss. Holotype
St. Louis, Mo.
- Worthen, A.H., 1890, GSI v. 8, p. 98-99.

- = *Hydreionocrinus sancti-ludovici* (Worthen) in Miller and Gurley, 1894, Ill. State Mus. Nat. Hist., Bull. 3, p. 40, pl. 6, f. 2.
- = *Plaxocrinus?? sancti-ludovici* (Worthen) in Moore and Plummer, 1940, Univ. Texas Pub. no. 3945, p. 356.
- Eupachyrinus verrucosus* White and St. John
See *Eupachyrinus bassetti* Worthen
- Eupoberia armigera* Meek and Worthen ISGS (ISM) 2910
Coal Measures
Mazon Creek, Grundy Co., Ill. **Syntype, part and counterpart**
Collected by Joseph Even
- Meek, F.B., and A.H. Worthen, 1868, Am. Jour. Sci. and Arts, 2nd ser., v. 46, p. 26; Meek and Worthen, 1868, GSI v. 3, p. 556, text f. A, B.
- = *Eupoberia granosa* Scudder, 1882, Boston Soc. Nat. Hist., Mem. v. 3, p. 168-170, pl. 12, f. 22, 24-26.
- "ISGS (ISM) 2910 = *Eupoberia granosa* Scudder, part and counterpart. I think the one part was described by Meek and Worthen as *Eupoberia armigera* and then loaned to Scudder. Scudder discussed the Meek and Worthen description and reproduced their figure, and then, apparently unaware that he had the part which had been described, redescribed it, along with the counterpart." (Letter from John Burke, Cleveland Mus. Nat. Hist., July 18, 1974.)
- = *Acantherpestes armigera* Meek and Worthen in Burke, J.J., 1973, Kirtlandia, Cleveland Mus. Nat. Hist., no. 17, p. 4.
- See also U.I. X-497 (ISM 11106) (specimen figured by Meek and Worthen in GSI v. 3, p. 556, text fig. C) and Field Museum - Univ. of Chicago 19703 (specimen figured GSI v. 3, p. 556, text fig. D), syntypes.
- Eupoberia granosa* Scudder
See *Eupoberia armigera* Meek and Worthen
- Eurydictya calhounensis* Ulrich ISGS (ISM) 2708
Trenton Group **Holotype**
3 miles N. Port au Gres,
Calhoun Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 520, pl. 30, f. 4, 4a.
- Also 2 slides made by June Ross about 1962-63.
- See also USNM 43754, "Figured sections of holotype...pl. 30, f. 4b, 4c," *vide* Schuchert's 1905 catalog.
- Eurydictya montifera* Ulrich ISGS (ISM) 2668
Cincinnati Group **Holotype** =
Wilmington, Ill. **Ulrich - pl. 30, f. 3, 3a**
Phillips - pl. 3, f. 1, 3, 6, 7
- Ulrich, E.O., 1890, GSI v. 8, p. 521, pl. 30, f. 3, 3a.
- Also 5 slides made by J.R. Phillips, 1958.
- See also USNM 43753, "Figured sections and fragments of holotype...pl. 30, f. 3b, 3c, 3d," *vide* Schuchert's 1905 catalog. Letter 2/6/69 from O.L. Karklins, USNM, states another piece of the holotype is USNM 137614.
- Phillips, June R.P., 1960, Palaeontology, v. 3, pt. 1, p. 12, pl. 3, f. 1, 3, 6, 7 (figs. 2, 4, and 5 are from slides made from the part of the holotype that is USNM 137614).
- Eurydictya sterlingensis* Ulrich ISGS (ISM) 2698
Cincinnati Group **Holotype**
Sterling, Whiteside Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 522, pl. 30, f. 2, 2a.
- Also 2 slides prepared by June Ross about 1962-63.
- Euspiopora serrata* Ulrich ISGS (ISM) 2732
Hamilton Group **Syntype**
New Buffalo, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 526, pl. 43, f. 4d?
- This specimen does not match the illustration very well. If it is 4d, the locality should be Thunder Bay, Mich., according to the explanation of plates. LSK 1/12/70.
- See also USNM 43752, "Cotypes and figured sections...pl. 43, f. 4-4c, 4e-4h," *vide* Schuchert's 1905 catalog.
- Eutaxocrinus gracilis* (Meek and Worthen)
See *Taxocrinus gracilis* Meek and Worthen
- Evactinopora grandis* Meek and Worthen ISGS (ISM) 2797
Burlington Group; Miss. **Figured specimen**
Montezuma, Pike Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 511, pl. 73, f. 4.
- Evactinopora grandis* Meek ISGS (ISM) 10786-A/B
and Worthen **Syntypes**
Burlington Group; Miss. **10786-A = F. 2a**
Burlington, Iowa **10786-B = F. 2b**
Collected by A.H. Worthen
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 503, pl. 15, f. 2a, 2b.
- Evactinopora radiata* Meek and Worthen ISGS (ISM) 10784
Lower Carboniferous limestone series **Holotype**
of Missouri; exact locality unknown
H. Pratten, collector
- Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 165; Meek and Worthen, 1868, GSI v. 3, p. 502, pl. 17, f. 2a, 2b.
- See also USNM 43381, "Plesiotype...pl. 73, f. 3, 3a," *vide* Schuchert's 1905 catalog.
- Fenestella burlingtonensis* Ulrich ISGS (ISM) 2812-1/2
Burlington limestone; Miss. **"Types"?**
Burlington, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 536, pl. 49, f. 1?, 1a?
- This slab was marked as "type" but does not appear to match the illustrations. According to Ulrich's label 2812-1 = pl. 49, f. 1 and 2812-2 = pl. 49, f. 1a. Ulrich' arrows and marking of the specimens are now illegible. M.K. Elias noted January 1963 that these specimens do not match Ulrich's illustrations.
- Fenestella cestriensis* Ulrich ISGS (ISM) 2821-1
Chester Group; Miss. **Syntypes?**
Kaskaskia, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 547, pl. 51, f. 5b?

Small slab with 10 species on it. 2821-1 is marked "Type" in Ulrich's handwritten label. There are two specimens marked 1, but they do not appear to match Ulrich's illustration. M.K. Elias noted May 13, 1961 that these were not the illustrated types (personal communication).

See also USNM 43758, "Cotype and figured section...pl. 51, f. 5, 5a," *vide* Schuchert's 1905 catalog.

Fenestella delicatula Ulrich ISGS (ISM) 2736
Coal Measures Figured syntype
Seville, Fulton Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 549, pl. 52, f. 2.

Verified as type (mirror image) by M.K. Elias, 1960. One thin section made and retained by M.K. Elias, to be returned later (still not returned as of 11/11/80). —LSK

Fenestella elevatipora Ulrich ISGS (ISM) 2821-5
Chester Group; Miss. Syntypes?
Kaskaskia, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 549, pl. 51, f. 37, 3a?

Small slab with 10 species on it. 2821-5 is marked "Type" in Ulrich's handwritten label. There are two specimens labeled 5 but they do not appear to match Ulrich's illustration. M.K. Elias noted May 13, 1961 that these were not the illustrated types (personal communication).

See also USNM 44080, "Cotypes...pl. 51, f. 3, 3a," *vide* Schuchert's 1905 catalog.

Fenestella exigua Ulrich ISGS (ISM) 4486-3
Warsaw beds; Miss. Syntype?
Monroe Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 545, pl. 51, f. 12, 1a? Ulrich's handwritten label, glued to the specimen, calls this "Type. Pl. 51, f. 1, 1a." M.K. Elias (personal communication, 1964) says this is not the type or specimen figured, but that the types are in the U.S. National Museum as of 1960.

See also USNM 43755, "Holotype...pl. 51, f. 1, 1a," *vide* Schuchert's 1905 catalog.

Fenestella filistriata Ulrich ISGS (ISM) 2812-4
Burlington limestone; Miss. "Types"?
Burlington, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 535, pl. 49, f. 27, 2a?

This slab was marked as "type" but does not appear to match illustrations. Ulrich's arrows and marking of the specimens are now illegible. M.K. Elias noted in January 1963 that these specimens do not match Ulrich's illustrations.

Fenestella inaequalis Ulrich ISGS (ISM) 2747-1
Upper Coal Measures Syntypes
According to Wanless-Simon-Ellas, 6/64, this is Macopin Limestone Member, Modesto Formation, McLeansboro. Probably equivalent to Bethany Falls Limestone of Missouri series in Kansas-Missouri area. Crow's Mill, Sangamon Co., Ill. (Original label and text, p. 554, give Ball's Mill as locality. Note by A.R. Crook, 1910, says this was a mistake and should be Crow's Mill in Ball Township.)

Ulrich, E.O., 1890, GSI v. 8, p. 554, pl. 52, f. 9, 9a.

At least four specimens on one slab along with other forms. I can't tell which specimen Ulrich figured. LSK 3/16/78.

See also USNM 43358, "Figured sections and fragment of holotype...pl. 54, f. 4, 4a," *vide* Schuchert's 1905 catalog.

Fenestella iowensis Elias ISGS (ISM) 2776-2
Keokuk Group; Miss. Holotype
Bentonsport, Iowa

Elias, M.K., 1964, Cinquième Congrès International de Stratigraphie et de Géologie du Carbonifère, Paris, 1963, Compte Rendu, v. 1, p. 378, pl. 1, f. 2; pl. 3; pl. 5, f. 1.

This specimen was originally catalogued as a syntype of *Fenestella rudis* Ulrich, 1890, q.v.

Two fragments removed for thin sections by M.K. Elias June 5, 1964, and retained by him. To be returned to ISGS later (not returned as of 11/11/80).

Fenestella limitaris Ulrich ISGS (ISM) 2770
Keokuk Group; Miss. Holotype
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 538, pl. 49, f. 4, 4a.

Small fragment for thin section removed by M.K. Elias, 5/13/61. Not returned to the ISGS as of 11/11/80.

Fenestella mimica Ulrich ISGS (ISM) 2820-3
Seville Is.; Coal Measures Holotype
Seville, Fulton Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 552, pl. 52, f. 7, 7a (illustrations are mirror image of specimen).

On small slab with several other species.

Fenestella multispinosa Ulrich ISGS (ISM) 2766-2/4
var. *chesterensis* Condra 2766-2 = Holotype, pl. 33, f. 1-2
and Elias 2766-3 = Paratype, pl. 33, f. 3?
Chester Group; Miss. 2766-4 = Paratype, pl. 33, f. 4
Chester, Randolph Co., Ill.

Condra, G.E., and M.K. Elias, 1944, GSA Spec. Paper 53, p. 110, pl. 33, f. 1-4.

2766-3 = Paratype, pl. 33, f. 3? Illustration appears to be of thin section probably made from this specimen, but section was not returned to the ISGS by Elias.

For types of *Fenestella multispinosa* Ulrich, see USNM 43349 and 43350, "Cotypes...pl. 50, f. 3-3d," *vide* Schuchert's 1905 catalog.

Fenestella perminuta Ulrich ISGS (ISM) 2820-5
Seville Is.; Coal Measures Syntype
Seville, Fulton Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 551, pl. 52, f. 4, 4a, 4b?

On slab with several other species.

Fenestella rudiformis Elias ISGS (ISM) 2745-1
Warsaw beds, Miss. Holotype
Warsaw, Hancock Co., Ill.

Elias, M.K., 1964, Cinquième Congrès International de Stratigraphie et de Géologie du Carbonifère, Paris, 1963, Compte Rendu, v. 1, p. 379, pl. 1, f. 3; pl. 4; pl. 5, f. 2.

See also *F. rudis* Ulrich. Ulrich's label indicates this specimen was type for *F. rudis* Ulrich. M.K. Elias says this specimen was not figured by Ulrich (personal communication, 1964).

***Fenestella rudis* Ulrich** IGS (ISM) 2745-1
Warsaw beds; Miss. = Ulrich's syntype
Warsaw, Hancock Co., Ill. = Holotype for *F. rudiformis* Elias

Ulrich, E.O., 1890, GSI v. 8, p. 537, pl. 49, f. 3b, 3c.

Ulrich's label indicated this specimen was used for illustrations above. M.K. Elias says Ulrich did not figure it (personal communication, 1964). Elias made 2745-1 holotype for his species *Fenestella rudiformis* Elias: Cinquième Congrès International de Stratigraphie et de Géologie du Carbonifère, Paris, 1963, Compte Rendu, v. 1, p. 379, pl. 1, f. 3; pl. 4; pl. 5, f. 2.

See also IGS (ISM) 2776-1/2, *Fenestella rudis* Ulrich.

See also USNM 43759, "Cotypes...pl. 49, f. 3a-d," *vide* Schuchert's 1905 catalog.

***Fenestella rudis* Ulrich** IGS (ISM) 2776-1/2
Keokuk Group; Miss. Syntypes
Bentonsport, Iowa 2776-1 = Ulrich's f. 3
= Elias' lectotype, pl. 1, f. 1;
pl. 2, f. 1-3
2776-2 = Ulrich's unfigured? syntype
= Elias' holotype of *F. lowensis*
pl. 1, f. 2; pl. 3; pl. 5, f. 1

Ulrich, E.O., 1890, GSI v. 8, p. 537, pl. 49, f. 3 (mirror image).

Elias, M.K., 1964, Cinquième Congrès International de Stratigraphie et de Géologie du Carbonifère, Paris, 1963, Compte Rendu, v. 1, p. 378, pl. 1, f. 1; pl. 2, f. 1-3.

Elias, same reference, made 2776-2 holotype for his new species, *F. lowensis*, p. 378, pl. 1, f. 2; pl. 3; pl. 5, f. 1.

Fragment removed by Elias from 2776-1 May 13, 1961, and another in 1963?, for thin sections; two fragments from 2776-2 removed by Elias 6/5/64. To be returned to the IGS later, but not returned yet as of 11/11/80.

See also IGS (ISM) 2745-1, *Fenestella rudis* Ulrich.

See also USNM 43759, "Cotypes...pl. 49, f. 3a-d," *vide* Schuchert's 1905 catalog.

***Fenestella serratula* Ulrich** IGS (ISM) 2745-2/4
Warsaw beds; Miss. Syntypes?
Warsaw, Hancock Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 544, pl. 50, f. 5?, 5a-c?

Ulrich's label indicates that this is the specimen figured, though his numbers 2 and 4 on the small slab have been lost. M.K. Elias says these are not the types. Types are USNM 44079 (personal communication, 1964).

See also USNM 44079, "Holotype...pl. 50, f. 5-5c," *vide* Schuchert's 1905 catalog.

***Fenestella sevilensis* Ulrich** IGS (ISM) 2820-1
Seville; Coal Measures Holotype?
Seville; Fulton Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 552, pl. 52, f. 6, 6a (and 6b?).

Ulrich's handwritten label indicates this is his "type," but I cannot be positive that it is the specimen figured. Drawing may be a reverse image from the specimen. LSK 3/7/78.

On slab with several other species.

***Fenestella tenax* Ulrich** IGS (ISM) 4486-4
Warsaw beds; Miss. Syntype?
Monroe Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 546, pl. 51, f. 2? Ulrich's handwritten label, glued to the specimen, calls this "Type. Pl. 51, f. 2." M.K. Elias (personal communication, 1964) says this is not the type or specimen figured, but that the types are in the U.S. National Museum as of 1960.

See also USNM 43756 and 43757, "Cotypes...pl. 51, figs. 2-2e," *vide* Schuchert's 1905 catalog.

***Fenestella wortheni* Ulrich** IGS (ISM) 2820-4
Seville ls.; Coal Measures Holotype?
Seville, Fulton Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 551, pl. 52, f. 5, 5a.

This specimen is marked on Ulrich's label as being his "type." However, I could not be positive that it is the specimen figured. If so, the illustration has been reversed and is a mirror image. LSK 3/7/78.

On slab with several other species.

***Fenestrapora occidentalis* Ulrich** IGS (ISM) 2729
Hamilton Group Syntype
Buffalo, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 558, pl. 44, f. 2, 2a.

See also USNM 43760, "Cotypes and figured sections...pl. 54, f. 7-7e," *vide* Schuchert's 1905 catalog.

***Fistulipora communis* Ulrich** IGS (ISM) 2730, 2730-A
Hamilton Group 2730-A = Fig'd. syntype
Buffalo, Iowa 2730 - About 10 other specimens
(unfig'd. syntypes?)

Ulrich, E.O., 1890, GSI v. 8, p. 476, pl. 47, f. 1, 1a.

See also USNM 43290, "Cotypes and figured sections...pl. 48, f. 1, 1a," *vide* Schuchert's 1905 catalog.

= *Cyclotrypa communis* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 220.

***Fistulipora (?Dichotrypa) corrugata* Ulrich** IGS (ISM) 2710
Hamilton Group Holotype?
Thunder Bay, Michigan

Ulrich, E.O., 1890, GSI v. 8, p. 480, pl. 47, f. 8, 8a.

See also USNM 43245, "Figured sections and fragment of holotype...pl. 48, f. 6-6b," *vide* Schuchert's 1905 catalog.

***Fistulipora monticulata* Ulrich** IGS (ISM) 2895
Hamilton Group Syntype
Buffalo, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 477, pl. 47, f. 3, 3b.

See also USNM 43248, "Cotypes and figured sections...pl. 47, f. 3a; pl. 48, f. 2, 2a," *vide* Schuchert's 1905 catalog.

- Geisonoceras crebristriatum* (Meek and Worthen)
See *Orthoceras crebristriatum* Meek and Worthen
- Gilbertocrinus tuberosus* (Lyon and Casseday) 4 specimens
Keokuk Group; Miss. 1813-A - Used for measurements
Crawfordsville, Ind.
- Van Sant, Jan F., and N. Gary Lane, 1964, Univ. Kans. Paleo. Contrib., art. 7, p. 106. One specimen, 1813-A, used for measurements, but catalog number was erroneously given as 1893 instead of 1813.
- Globocrinus unionensis* (Worthen)
See *Batocrinus unionensis* Worthen
- Glyptocrinus* sp. undet.
See *Alisocrinus tetramatus* Brower
- Glyptopora elegans* (Prout) ISGS (ISM) 2787
Warsaw beds; Miss. Figured specimen
Warsaw, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 518, pl. 78, f. 10.
See also USNM 44094, "Cotype and figured sections...pl. 78, f. 10a-10e," *fide* Schuchert's 1905 catalog.
- Glyptopora michelinia* (Prout) ISGS (ISM) 2784-A/C
Warsaw beds; Miss. Figured specimens
St. Louis Co., Mo. 2784-A = Pl. 78, f. 8, 8a
2784-B = Pl. 78, f. 8b
2784-C = Not fig'd., but bears diamond sticker used to indicate type or fig'd. spec.
- Ulrich, E.O., 1890, GSI v. 8, p. 515, pl. 78, f. 8, 8a, 8b.
- Glyptopora pinnata* Ulrich ISGS (ISM) 2771
Burlington Group; Miss. Holotype
Sagetown, Henderson Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 516, pl. 78, f. 2.
= *Phractopora pinnata* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 350.
- Glyptopora plumosa* (Prout) ISGS (ISM) 2752-A/B
Warsaw beds; Miss. Figured specimens
Warsaw, Ill. 2752-A = Pl. 78, f. 3, and
Treatise p. G89, f. 53, 1b
- Ulrich, E.O., 1890, GSI v. 8, p. 512, pl. 78, f. 3, 3a.
Bassler, R.S., 1953, Treatise on Invertebrate Paleo., pt. G, Bryozoa, p. G89, f. 53, 1b (reversed).
See also USNM 43761, "Plesiotype...pl. 78, f. 3b, 3c," *fide* Schuchert's 1905 catalog.
- Glyptopora punctipora* Ulrich ISGS (ISM) 2778
Chester Group; Miss. Holotype
Chester, Randolph Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 519, pl. 78, f. 97, 9a?
See also USNM 43762, "Figured fragment of holotype...pl. 78, f. 9, 9a," *fide* Schuchert's 1905 catalog.
- Glyptopora sagenella* (Prout) ISGS (ISM) 2774-A/B
Keokuk Group; Miss. 2774-A = Pl. 78, f. 6, 6a
Bentonsport, Iowa 2774-B = Not figured, but
Collected by A.H. Worthen specimen bears diamond
sticker usually used on types
- Ulrich, E.O., 1890, GSI v. 8, p. 513, pl. 78, f. 6, 6a.
- Glyptopora sagenella* var. *caliculosa* Ulrich ISGS (ISM) 2790
Warsaw beds; Miss. Syntype? not figured
Warsaw, Ill.
Collected by A.H. Worthen
- Ulrich, E.O., 1890, GSI v. 8, p. 514.
See also USNM 43380, "Cotypes," *fide* Schuchert's 1905 catalog.
- Glyptopora sagenella* var. *lata* Ulrich ISGS (ISM) 2775
Warsaw beds; Miss. Holotype?
Warsaw, Hancock Co., Ill.
Collected by A.H. Worthen
- Ulrich, E.O., 1890, GSI v. 8, p. 515, pl. 78, f. 7 (not f. 4 as listed on p. 515).
- Goniates monroensis* Worthen ISGS (ISM) 2589-A/C
St. Louis limestone; Miss. 2589-A = Holotype, fig'd. by
Waterloo, Monroe Co., Ill. Worthen, pl. 26, f. 5 and
Collected by A.H. Worthen by Collinson, pl. 45, f. 3
2589-B = Topotype, fig'd. by
Collinson, f. 4
2589-C = Topotype fig'd. by
Collinson, f. 5-6
- Worthen, 1890, GSI v. 8, p. 150, pl. 26, f. 5.
= *Prolecanites monroensis* (Worthen) in Collinson, C.W., 1955, Jour. Paleo., v. 29 (3), p. 436, pl. 45, f. 3-6. Stratigraphic horizon corrected to Ste. Genevieve ls. 2589-B and 2589-C were found in the same piece of limestone as the holotype.
- Granatocrinus granulosus* Meek and Worthen
See *Pentremites (Granatocrinus) granulosus* Meek and Worthen
- Graphiocrinus monroensis* (Worthen)
See *Eupachyrinus monroensis* Worthen
- Halsiocrinus bradleyi* (Meek and Worthen)
See *Calceocrinus bradleyi* Meek and Worthen
- Hapsiphyllum ulrichi* (Worthen)
See *Zaphrentis ulrichi* Worthen
- Helopora imbricata* Ulrich ISGS (ISM) 2697
Cincinnati Group Syntypes?
Wilmington, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 644, pl. 29, f. 5.
- Hemiphragma imperfectum* (Ulrich)
See *Batostoma imperfectum* Ulrich

Hemipronites propinquus Meek and Worthen
See *Hemipronites subplanus* Conrad?

Hemipronites subplanus Conrad? ISGS (ISM) 2204-A/B
Upper Silurian (Leomon Fm.,
fide Amsden, 1974) Figured specimens -
Syntypes - Lectotype
Thebes, Alexander 2204-A = Meek & Worthen, pl. 6, f. 6a
Co., Ill. = Amsden, lectotype, pl. 3, f. 2a
2204-B = Meek & Worthen, pl. 6, f. 6b
= Amsden, pl. 3, f. 2b

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 349, pl. 6, f. 6a, 6b.

= *Hemipronites* (or *Streptorhynchus*) *propinquus* Meek and Worthen, 1868, GSI v. 3, p. 351, pl. 6, f. 6a, 6b (2204-A/B = syntypes).

= *Coelonia propinqua* (Meek and Worthen, 1868) in Amsden, T.W., 1974, Okla. Geol. Survey Bull. 119, p. 57, pl. 3, f. 2a-b. (2204-A is here designated as lectotype.)

Hemitrypa aspera Ulrich ISGS (ISM) 2823-1/2
Keokuk Group; Miss. Syntypes
Bentonsport, Iowa 2823-1 = Pl. 57, f. 4, 4a-b

Ulrich, E.O., 1890, GSI v. 8, p. 563, pl. 57, f. 4, 4a-b.

See also USNM 43764, 43765, "Cotypes...pl. 57, f. 4c-4f," fide Schuchert's 1905 catalog.

Hemitrypa nodosa Ulrich ISGS (ISM) 2824
Keokuk Group; Miss. Syntype?
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 562, pl. 57, f. 3?

See also USNM 44087, "Holotype...pl. 57, f. 3," fide Schuchert's 1905 catalog.

Hemitrypa perstriata Ulrich ISGS (ISM) 2817
Keokuk Group; Miss. Syntype?
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 564, pl. 57, f. 6?

This specimen bears Ulrich's label as "type," but USNM catalog also claims to have the type. Both may be syntypes?

See also USNM 43766, "Cotype and figured sections...pl. 57, f. 6, 6a," fide Schuchert's 1905 catalog.

Hemitrypa proutana Ulrich ISGS (ISM) 2818-1/2
Warsaw beds; Miss. Syntypes
Monroe Co., Ill. (2818-1) 2818-1 = Pl. 57, f. 1
and Warsaw, Ill. (2818-2) = Blake ms., pl. 1, f. 8

Ulrich, E.O., 1890, GSI v. 8, p. 560, pl. 57, f. 1.

Specimen 2818-1 bears Ulrich's label, "*Hemitrypa proutana* Ul. Type. Cells on fig. 1 were taken from this specimen."

See also USNM 43371, "Plesiotypes and figured sections...pl. 57, f. 1-1c," fide Schuchert's 1905 catalog.

Blake, D.B., 1980 (in preparation), in Treatise on Invert. Paleo., pt. G, Bryozoa, revised, manuscript pl. 1, f. 8.

Hemitrypa proutana ISGS (ISM) 2815-1/2
var. *vermifera* Ulrich 2 Syntypes
Warsaw beds; Miss. 2815-1 = pl. 57, f. 5, 5a
Warsaw, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 561, pl. 57, f. 5, 5a.

Heterotrypa affinis (Ulrich)
See *Amplexopora affinis* Ulrich

Heterotrypa lamellosa (Ulrich)
See *Monticulipora lamellosa* Ulrich

Heterotrypa singularis Ulrich ISGS (ISM) 2680-A/B
Cincinnati Group; Ord. Syntypes
Wilmington, Ill. 2680-A = Pl. 37, f. 3, 3b
2680-B = Pl. 37, f. 3a

Ulrich, E.O., 1890, GSI v. 8, p. 415, pl. 37, f. 3, 3a, 3b.

Utgaard, John, and T.G. Perry, 1964, Ind. Dept. Conserv., Geol. Survey Bull. 33, p. 75-78.

Also three thin sections and 4 fragments cut from 2680-A and four thin sections from 2680-B made by June Ross about 1962-63.

See also USNM 43750, "Figured sections of cotypes...pl. 37, f. 3c, 3d, 3e," fide Schuchert's 1905 catalog.

= *Dekayella singularis* (Ulrich) in Ulrich and Bassler, 1904, Smithsonian Misc. Coll., v. 47, p. 27.

= *Heterotrypa singularis* Ulrich, in Boardman and Utgaard, 1966, Jour. Paleol., v. 40 (5), p. 1105.

Hindia inaequalis Ulrich and Everett ISGS (ISM) 2661
Trenton Group Holotype (in 2 pieces)
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 275, pl. 2, f. 4. See also discussion of *Hindia* pp. 226-230. Originally catalogued as *Microspongia dixonensis* Ulrich and Everett, which appears to have been a manuscript name, changed in publication to *Hindia inaequalis*.

See also USNM 46561, "Figured sections of holotype...pl. 2, f. 4-4b," fide Schuchert's 1905 catalog. (The specimen at the ISGS appears to be complete, so it is unlikely that the USNM slides could have been made from this specimen.)

Histocrinus coreyi (Worthen)
See *Poteriocrinus coreyi* Worthen

Holopea keokuk (Worthen)
See *Polyphemopsis?* *keokuk* Worthen

Homocrinus angustatus Meek ISGS (ISM) 1570-A/B
and Worthen Syntypes (2 on one slab)
Cincinnati Group; Lower Silurian 1570-A = Pl. 23, f. 8
Mount Carroll, Ill. 1570-B = Not figured

Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 30; Worthen and Meek, 1875, GSI v. 6, p. 492, pl. 23, f. 8.

= *Dendrocrinus angustatus* (Meek and Worthen) in Bassler and Moody, 1943, p. 413.

Homotrypa flabellaris Ulrich ISGS (ISM) 2688
Cincinnati Group Syntype, pl. 32, f. 3, 3a
Wilmington, Ill.

- Ulrich, E.O., 1890, GSI v. 8, p. 411, pl. 32, f. 3, 3a.
- Utgaard, John, and T.G. Perry, 1964, Ind. Dept. Conserv., Geol. Survey Bull. 33, p. 51-55.
- Bork, Kennard B., and T.G. Perry, 1968, Jour. Paleo., v. 42, no. 4, p. 1050-1052.
- Also 5 thin sections prepared by June Ross about 1962-63.
- See also USNM 43767, "Figured sections of cotyle...pl. 32, f. 3b-c," *fide* Schuchert's 1905 catalog.
- Homotrypa gelasinosa* Ulrich ISGS (ISM) 2705
Cincinnati Group
Wilmington, Will Co., Ill. **Holotype, pl. 32, f. 2, 2a**
- Ulrich, E.O., 1890, GSI v. 8, p. 410, pl. 32, f. 2, 2a. Part of specimen below crack shown in drawing is missing, 3/22/78.
- See also USNM 43768, "Figured sections of holotype...pl. 32, f. 2b-c," *fide* Schuchert's 1905 catalog.
- Homotrypella contexta* Ulrich ISGS (ISM) 2679
Cincinnati Group
Wilmington, Ill. **Holotype**
- Ulrich, E.O., 1890, GSI v. 8, p. 412, pl. 32, f. 5.
- One specimen, 3 fragments of same; 2 slides made by June Ross about 1962.
- See also USNM 43763, "Fragment and figured sections of holotype...pl. 32, f. 5a-b," *fide* Schuchert's 1905 catalog.
- Hormocrinus tennesseensis* (Worthen)
See *Centrocrinus tennesseensis* Worthen
- Hybochinus* sp. ISGS (ISM) 2482
Chester limestone; Miss.
Monroe Co., Ill. **Figured specimen**
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 331, pl. 31, f. 7.
- = *Lepidesthes* in Kier, P.M., 1966, Treatise on Invert. Paleo., pt. U, Echinodermata, p. U303.
- Hybochinus spectabilis* Worthen ISGS (ISM) 2481-1/2
and Miller **Syntypes**
Chester limestone; Miss. **2481-1 = F. 5a-c**
Prairie du Long Creek, **2481-2 = F. 6**
Monroe Co., Ill.
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 332, pl. 31, f. 5a-c, 6.
- = *Lepidesthes spectabilis* (Worthen and Miller) in Kier, P.M., 1966, Treatise on Invert. Paleo., pt. U, Echinodermata, p. U303.
- Hydreionocrinus sancti-ludovici* (Worthen)
See *Eupachycinus? sancti-ludovici* Worthen
- Hypselocrinus calyculus* (Hall)
See *Poteriocrinus calyculus* Hall
- Hysterolites (Acrospirifer) worthenanus* (Schuchert)
See *Spirifer engelmanni* Meek and Worthen
- Hystrispongia carbonaria* Ulrich ISGS (ISM) 2663
Near the base of the
Coal Measures (cap rock
of the Rock Island, No. 1, coal)
Seville, Fulton Co., Ill. **Holotype (and type species of genus)**
- Ulrich, E.O., 1890, GSI v. 8, p. 245, pl. 6, f. 3.
- = *Hystrispongia carbonaria* S.A. Miller, 1889, N. American Geol. and Paleo., p. 160.
- Ianthinopsis worthenanus* (Miller)
See *Macrocheilus altonensis* Worthen
- Iliaenus (Bumastus) graftonensis* ISGS (ISM) 2118
Meek and Worthen **Holotype**
Upper Silurian
Grafton, Ill.
- Meek, F.B., and J. A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia, Proc., p. 54; Worthen and Meek, 1875, GSI v. 6, p. 508, pl. 25, f. 4.
- Intermediocrinus monroensis* (Worthen)
See *Eupachycinus monroensis* Worthen
- Intrapora basalis* Ulrich
See *Stictoporella basalis* Ulrich
- Kionoceras cancellatum* Hall
See *Orthoceras angulatum* Wahlenberg
- Kionoceras scammoni* (McChesney) ISGS (ISM) 2216
Upper Silurian **Figured specimen**
Bridgeport, Ill.
- Foerste, A.F., 1928, Denison Univ. Bull., v. 28 (10), (Jour. Sci. Lab., v. 23 (7)), p. 287-290, pl. 63, f. 2.
- (Originally catalogued as *Orthoceras woodworthi* McChesney).
- Kionoceras scammoni* (McChesney) ISGS (ISM) 7770
Racine dolomite; Silurian (2 specimens),
Bridgeport, Ill. 7770-A1/A2, 7770-E
Figured specimens
7770-A1 = pl. 67, f. 2A
7770-A2 = pl. 67, f. 2B
- Foerste, A.F., 1928, Denison Univ. Bull., v. 28 (10), (Jour. Sci. Lab., v. 23 (7)), p. 288, pl. 67, f. 2A, 2B.
- Five specimens, or pieces, catalogued under this number. The two figured pieces are parts of the same specimen. All studied by A. Foerste, 1919. Foerste's labels give all but one (marked 7770-E) the name *K. scammoni numerosior*, n. var., but when the article was published the varietal name was not included.
- Koninckioceras scottense* (Worthen)
See *Temnocheilus scottense* Worthen
- Lechritrochoceras notum* (Hall) ISGS (ISM) 2162
Racine dolomite; Upper Silurian **Figured specimen**
Bridgeport, Ill.

- Foerste, A.F., 1930, Denison Univ. Bull., v. 30 (3), (Jour. Sci. Lab., v. 25 (1)), p. 52-57, pl. 7, f. 9.
- = *Trochoceras notum* Hall, 1868, 20th Rep. New York State Cab. Nat. Hist., p. 360; rev. ed., 1870, p. 403, pl. 16, f. 1, 2.
- = *Trochoceras costatum* Hall, 1868, (incorrect citation in expl. of pl. 16, corrected in Errata facing p. 410, *vide* Foerste 1930, p. 52).
- Leacythiocrinus adamsi* Worthen** IGS (ISM) 2468
About horizon of Coal No. 8, **Holotype**
Lower Coal Measures
Sec. 13, T. 11 N., R. 6 E., Peoria Co., Ill.
Collected by Mr. W.H. Adams
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 37; Worthen, 1883, GSI v. 7, p. 317, pl. 30, f. 8a-d.
- Leioclema? araneum* Ulrich** IGS (ISM) 2840
Chester Group; Miss. **Syntypes (3)**
Randolph Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 431, pl. 75, f. 9?
- Two of three specimens catalogued as 2840 bear the diamond sticker indicating type, but it is impossible to tell whether one of these is the specimen from which figure 9 was drawn.
- See also, USNM 43777, "Cotypes and figured sections...p. 75, f. 9a-c," *vide* Schuchert's 1905 catalog.
- Leioclema foliatum* Ulrich** IGS (ISM) 2842-1
Warsaw beds; Miss. **"Type" (probably holotype)**
Warsaw, Ill.
- Ulrich, E.O., 1890, GSI v. 8, text fig. 1 on p. 301, p. 431.
- See also USNM 43333, "Figured sections of holotype...p. 301, f. 1, p. 431," *vide* Schuchert's 1905 catalog.
- Presumably IGS (ISM) 2842-1 is specimen from which illustration on p. 301 (fig. 1) was made. Ulrich's handwritten label, glued to the specimen, says "Type. Fig. in cut." Presumably this is also the specimen from which the USNM slides were made.
- Leioclema gracillimum* Ulrich** IGS (ISM) 2811
Keokuk Group; Miss. **Figured "type"**
Bentonsport, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 429, pl. 75, f. 6 (and 6a-b?).
- Labeled *L. minimum* on label and in catalog, but this is definitely the specimen figured as *L. gracillimum*.
- Leioclema minimum* Ulrich**
See *Leioclema gracillimum* Ulrich
- Leioclema subglobosum* Ulrich** IGS (ISM) 2841
Kinderhook Group; Miss. **"Type?"**
Marshalltown, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 428 (not pl. 75, f. 8).
- See also USNM 43775, "Figured section of holotype...pl. 75, f. 8a, 8b," *vide* Schuchert's 1905 catalog.
- Label in Ulrich's handwriting, glued to specimen, says "Type. Pl. 75, fig. 8." This is not the specimen shown as fig. 8, however. Perhaps the figured specimen was taken from this slab. LSK 10/28/71.
- Leioclema wachsmuthi* Ulrich** IGS (ISM) 2753
Kinderhook Group; Miss. **Holotype**
Marshalltown, Iowa
Collected by Mr. Charles Wachsmuth.
- Ulrich, E.O., 1890, GSI v. 8, p. 428, pl. 75, f. 7.
- See also USNM 43774, "Figured sections of holotype...pl. 75, f. 7a, 7b," *vide* Schuchert's 1905 catalog.
- Leioclema wilmingtontense* Ulrich** IGS (ISM) 2700
Cincinnati Group **Holotype (2 pieces)**
Wilmingon, Will Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 426, pl. 34, f. 4.
- Also two thin sections prepared by June Ross about 1962-63.
- See also USNM 43776, "Figured sections of holotype...pl. 34, f. 4a, 4b," *vide* Schuchert's 1905 catalog.
- Lepetopsis chesterensis* Worthen** IGS (ISM) 2514
Chester limestone; Miss. **Holotype**
Chester, Ill.
Collected by Mrs. J.C. Salter.
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 25; Worthen, 1890, GSI v. 8, p. 140, pl. 25, f. 1, 1a.
- Lepidesthes***
See *Hybochinus*
- Lepidesthes spectabilis* (Worthen and Miller)**
See *Hybochinus spectabilis* Worthen and Miller
- Leptodomus? magnus* (Worthen)**
See *Schizodus magnus* Worthen
- Leptotrypa filiosa?* d'Orbigny** IGS (ISM) 2704
Trenton Group **Figured specimen?**
Calhoun Co., Ill.
- Ulrich, E. O., 1890, GSI v. 8, p. 456 (pl. 36).
- See also USNM 43309, "Figured sections of plesiotype...pl. 36, f. 7, 7a," *vide* Schuchert's 1905 catalog.
- = *Amplexopora filiosa* (d'Orbigny) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 164.
- This is probably the specimen from which material was taken for the slides that are in the U.S. National Museum, though I know of no way to prove it. LSK 3/23/78.
- Leptotrypa hexagonalis* Ulrich** IGS (ISM) 2683
Trenton Group **Syntype?**
Calhoun Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 455, pl. 36, f. 6? 6a?
- See also USNM 44057, "Holotype...pl. 26, f. 6, 6a," *vide* Schuchert's 1905 catalog.

Both the ISGS and the USNM specimens are marked type or holotype. They should be compared to see whether it is possible to determine which specimen was figured by Ulrich. LSK 2/23/78.

Lichas boltoni (Bigsby) ISGS (ISM) 2183-A/B
Niagara Group; Upper Silurian
Grafton, Ill. **2183-A = Fig. spec.**
2183-B - Not fig'd.
2183-A = Holotype in
Miller & Unklesbay

Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 508, pl. 25, f. 5.
= *Arctinurus thompsoni* Miller and Unklesbay, 1944, Jour. Paleol., v. 18 (4), p. 364.

Lima chesterensis Worthen ISGS (ISM) 2593
Chester shale; Miss. **Holotype**
Chester, Ill.
Collected by A.H. Worthen

Worthen, A.H., 1890, GSI v. 8, p. 120, pl. 33, f. 7.

Lima? menardi Worthen ISGS (ISM) 2513
Coal Measures (roof of Greenview coal). **Holotype**
(Probably equal to roof of No. 5
coal, *vide* H.R. Wanless in Newell, 1937).
Greenview, Menard Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 22.
= *Aviculopecten menardi* (Worthen), 1890, GSI v. 8, p. 120, pl. 22, f. 12.

= *Euchondria menardi* (Worthen) in Newell, Norman D., 1937, State Geol. Survey Kansas, v. 10, p. 108; pl. 19, f. 14a, b, 15a, b. (Fig. 14a, b is a toptype on same slab with holotype but not mentioned by Worthen).

Lingula mytiloides? Sowerby ISGS (ISM) 2876-A/B
Coal Measures **Figured specimens**
Fulton Co., Ill. **2876-A = F. 2a**
2876-B = F. 2b

Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 572, pl. 25, f. 2a, 2b.

= *Lingula umbonata* Cox in Weller, Stuart, 1898, U.S.G.S. Bull. 153, p. 326.

Lingula umbonata Cox
See *Lingula mytiloides?* Sowerby

Lingula varsoviensis Worthen ISGS (ISM) 2601
Warsaw beds; Miss. **Holotype?**
Warsaw, Hancock Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 24; Worthen, 1890, GSI v. 8, p. 104, pl. 11, f. 8.

Weller, Stuart, Ill. Geol. Survey Mon. 1, p. 36, pl. 1, f. 6.

In Worthen, 1890, the catalog number is given as 2495. In Weller, 1914, it is given as 2601. In the Ill. State Mus. catalog the Worthen 1884 reference is given after the entry for 2495; the Worthen 1890 reference after 2601. There is no specimen in the collection for 2495; and 2601 is the specimen figured by Weller as the holotype. # 2601 also bears the diamond-shaped slicker Worthen used to designate his types and figured specimens.

Linocrinus spinuliferous (Worthen)
See *Poteriocrinus spinuliferous* Worthen

Lioclemella nitida (Ulrich)
See *Trematopora? nitida* Ulrich

Lophophyllidium proliferum (McChesney) ISGS (ISM) 4064-B
Beds over coal No. 8, Trivoli; Penn. **Figured specimen**
Near Springfield, Ill.

Jeffords, Russell M., 1942, State Geol. Survey Kansas Bull. 41, Univ. Kansas Pub., pl. 1, f. 1a-c.

4064-A was designated as neotype of *Cyathaxonia prolifera* McChesney, the genotype of *Lophophyllidium*, by Jeffords, but I have been unable to locate that specimen or the other seven referred to by Jeffords as being in this lot from the Worthen collection. In Dr. J.M. Weller's correspondence a letter dated 2/5/42 from Jeffords states that he was returning the specimens by separate mail. Extensive search has failed to locate any of them in recent years. LSK 10/18/62, 3/27/78.

Lophophyllum profundum Worthen ISGS (ISM) 2565-A/B
Lower division of LaSalle limestone; **Syntypes**
Upper Coal Measures **2565-A = Pl. 10, f. 14**
LaSalle Co., Ill. **2565-B = Pl. 10, f. 14a**
Collected by A.H. Worthen

Worthen, A.H., 1890, GSI, v. 8, p. 79, pl. 10, f. 14, 14a.

Lophophyllum proliferum McChesney
See *Lophophyllidium proliferum* (McChesney)

Loxonema peoriensis Worthen ISGS (ISM) 2532
Coal Measures **Holotype**
Peoria Co., Ill.
Collected by Mr. Gifford

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 7; Worthen, 1890, GSI v. 8, p. 139, pl. 23, f. 10, 10a, 10b.

= *Palaeostylus* (*Pseudozygopleura*) *peoriensis* (Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 122, 156.

Loxonema quadri-carinatus Worthen ISGS (ISM) 2534
Coal Measures **Holotype**
Peoria Co., Ill.
Collected by Mr. Gifford

Worthen, A.H., 1884, Illinois State Mus. Nat. Hist., Bull. 2, p. 7; Worthen, 1890, GSI v. 8, p. 140, pl. 23, f. 9, 9a.

= *Stegocoelia* (*Stegocoelia*) *wortheni* Knight in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 122, 212.

Lypopora divergens Ulrich ISGS (ISM) 2783
Chester Group; Miss. **Syntype**
Chester, Randolph Co., Ill. **= Ulrich's pl. 58, f. 4**
= Blake's ms. pl. 1, f. 12

Ulrich, E.O., 1890, GSI v. 8, p. 584, pl. 58, f. 4.

See also USNM 44082 and 44083, "Cotypes....pl. 58, f. 4b and 4d." *vide* Schuchert's 1905 catalog.

Blake, D.B., 1980 (in preparation), In Treatise on Invertebrate Paleontology, pt.G, Bryozoa, revised, manuscript pl. 1, f. 12.

- Lyropora quincuncialis*** Hall
Chester Group; Miss.
Chester, Ill.
ISGS (ISM) 2744-A/B
Figured specimens
2744-A = Pl. 58, f. 3
2744-B = Pl. 58, f. 3a-b
- Ulrich, E.O., 1890, GSI v. 8, p. 583, pl. 58, f. 3, 3a-b (and 3c-d?).
See also USNM 43773, "Figured sections of plesiotypes...pl. 55, f. 7-7c," *vide* Schuchert's 1905 catalog.
- Macrocheilus altonensis*** Worthen
St. Louis Limestone; Miss.
Alton, Ill.
Collected by A.H. Worthen
ISGS (ISM) 2598
Holotype
- Worthen, A. H., 1890, GSI v. 8, p. 143, pl. 24, f. 1, 1a.
= *Macrochilina worthenanus* Miller, 1889, N. Amer. Geol. and Paleont., p. 409.
- Not *Macrocheilus altonensis* Worthen in Meek and Worthen, 1873, GSI v. 5, p. 593, pl. 28, f. 8a-b. (Specimen figured here was catalogued in Worthen's catalog as ISM 11042).
- Not *Soleniscus (Macrochilina) altonensis* (Meek and Worthen) in Knight, J. B., 1931, Jour. Paleol., v. 5 (3), p. 199, 219, pl. 26, f. 1. Knight refigured ISM 11042, the holotype. Specimen missing from the U.I. collections in 1964.
- Ianthinopsis worthenanus* (Miller) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 108, 124.
- Macrodon minima*** (Worthen)
See *Pleurophorus minimus* Worthen
- Mantikosocrinus hemisphericus*** (Worthen)
See *Agassizocrinus hemisphericus* Worthen
- Mantis?*** Scudder
Coal Measures
Mazon Creek, Grundy Co., Ill.
ISGS (ISM) 3090
Figured specimen, part
and counterpart
- Scudder, S.H., 1868, in GSI v. 3, p. 567, text f. 3.
- Marginatia crawfordsvillensis*** (Weller)
See *Productus magnus* Meek and Worthen
- Meekopora approximata*** Ulrich
Chester Group; Miss.
Chester, Randolph Co., Ill.
ISGS (ISM) 2833-A/B
Syntypes
2833-A probably is
specimen figured
- Ulrich, E.O., 1890, GSI v. 8, p. 484, pl. 77, f. 5.
- Meekopora eximia*** Ulrich
Chester Group; Miss.
Monroe Co., Ill.
ISGS (ISM) 2807-A/D
4 Syntypes, 1 thin section
2807-B = pl. 77, f. 6, 6a-b
2807-A = specimen from which
Perry made thin section (1956),
not figured
- Ulrich, E.O., 1890, GSI v. 8, p. 483, pl. 77, f. 6, 6a-b.
- Perry, T.G., and Alan S. Horowitz, 1963, Ind. Dept. Cons., Geol. Survey Bull. 26, p. 27.
- See also USNM 43285, "Cotypes and figured sections...pl. 77, f. 6c-d," *vide* Schuchert's 1905 catalog.
- Megaglossoceras montgomeryense*** (Worthen)
See *Nautilus montgomeryensis* Worthen
- Metablastus varsoviensis*** (Worthen)
See *Pentremites (Tricelocrinus) varsoviensis* Worthen
- Microsporgia dixonensis*** Ulrich and Everett
See *Hindia inaequalis* Ulrich and Everett
- Modiola illinoiensis*** Worthen
Oolitic beds of St. Louis Group; Miss.
Monroe Co., Ill.
Collected by A.H. Worthen
ISGS (ISM) 2518-A/B
Syntypes
2518-A = Pl. 20, f. 2, 2a
2518-B - Unfigured
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 16; Worthen, 1890, GSI v. 8, p. 125, pl. 20, f. 2, 2a.
- Monotrypa rectimuralis*** Ulrich
Cincinnati Group
Alexander Co., Ill.
ISGS (ISM) 2694
Syntype
- Ulrich, E.O., 1890, GSI v. 8, p. 462, pl. 38, f. 4.
See also USNM 43779, "Cotype and figured sections...pl. 38, f. 4a-b," *vide* Schuchert's 1905 catalog.
- Monotrypella appressa*** Ulrich
Hamilton shale
Buffalo, Iowa
ISGS (ISM) 2731
Syntype
- Ulrich, E.O., 1890, GSI v. 8, p. 453, pl. 46, f. 1a (on plate as *M. simplex* in error).
Worthen's handwritten label gives locality as Buffalo, Iowa; Ulrich's gives Rock Island, Ill.
- See also USNM 43751, "Cotypes and figured sections...pl. 46, f. 1-1e," *vide* Schuchert's 1905 catalog. Fig. 1a is definitely ISGS (ISM) 2731 even though Schuchert's catalog would indicate that the specimen was at the USNM.
- = *Eridotrypa appressa* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 237.
- Monotrypella crassimuralis*** Ulrich
Cincinnati Group, Ord.
Wilmington, Ill.
ISGS (ISM) 2692-A/B
Syntypes
2692-A = Fig. 2
2692-B = Fig. 2a, 2b?
- Ulrich, E.O., 1890, GSI v. 8, p. 452, pl. 38, f. 2, 2a, 2b?
- See also USNM 43780, "Figured sections of cotype...pl. 38, f. 2c-f," *vide* Schuchert's 1905 catalog.
- = *Tetratoechus crassimuralis* (Ulrich) in Boardman, Richard S., and Frank K. McKinney, 1976, Jour. Paleol., v. 50 (1), p. 75-76, pl. 2, f. 1-5; pl. 13, f. 3. Boardman and McKinney designated as lectotype USNM specimen 204844 and as paralectotypes USNM 204843, 204845-204847, chosen from the USNM syntype suite, USNM 43780. The Illinois Geological Survey specimens were not examined.
- Monotrypella simplex*** Ulrich
See *Monotrypella appressa* Ulrich
- Monticulipora lamellosa*** Ulrich
Cincinnati Group
Wilmington, Ill.
ISGS (ISM) 2676
Holotype?

Ulrich, E.O., 1890, GSI v. 8, p. 498, pl. 32, f. 4? (Ulrich's label, glued to specimen, calls this the type and refers to fig. 4, but I am unable to verify this.)

Also two thin sections prepared by June Ross about 1962-63.

See also USNM 43303, "Figured sections and fragment of holotype...pl. 32, f. 4, 4b," *vide* Schuchert's 1905 catalog.

= *Heterotrypa lamellosa* (Ulrich, 1890) in Boardman and Utgaard, 1966, Jour. Paleol., v. 40 (5), p. 1105-1106.

Monticulipora winchelli Ulrich
Hamilton Group
Thunder Bay, Mich.
Collected by A.H. Worthen
ISGS (ISM) 2711
Holotype?

Ulrich, E.O., 1890, GSI v. 8, p. 408, pl. 45.

See also USNM 43302, "Figured sections of holotype...pl. 45, f. 6-6a" *vide* Schuchert's 1905 catalog.

Mooreocrinus hemisphericus (Worthen)
See *Agassizocrinus hemisphericus* Worthen

Myalina angulata Meek and Worthen
Chester limestone; Miss.
Chester, Ill.
ISGS (ISM) 4094
Unfigured syntype

Meek, F.B., and A.H. Worthen, 1860, Acad. Nat. Sci. Philadelphia Proc., p. 455; Meek and Worthen, 1866, GSI v. 2, p. 300. This ISGS specimen has the diamond sticker indicating it is a type, and is labeled "Type," but it is not figured. The U.I. has two syntypes, U.I. X-435 (ISM 10894), figured GSI v. 2, pl. 23, f. 7a-b.

Myalina monroensis Worthen
St. Louis Limestone; Miss.
Monroe Co., Ill.
Collected by A.H. Worthen
ISGS (ISM) 2522-A/B
Syntypes
2522-A = F. 10
2522-B = F. 10a

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 15; Worthen 1890, GSI v. 8, p. 127, pl. 20, f. 10, 10a.

Naticopsis madisonensis Worthen
St. Louis Limestone; Miss.
Alton, Madison Co., Ill.
Collected by A.H. Worthen
ISGS (ISM) 2546
Holotype

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 9; Worthen, 1890, GSI v. 8, p. 144, pl. 25, f. 4, 6.

= *Naticopsis (Naticopsis) madisonensis* Worthen in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 141.

This specimen has apparently met with an accident and been repaired extensively.

Nautilus montgomeryensis Worthen
Coal Measures
Montgomery Co., Ill.
Collector unknown
ISGS (ISM) 2544
Holotype

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist., Bull. 2, p. 4; Worthen, 1890, GSI v. 8, p. 148, pl. 26, f. 2; pl. 27, f. 1.

= *Megaglossoceras montgomeryense* (Worthen) in Miller, A.K., C.O. Dunbar, and G.E. Condra, 1933, Nebraska Geol. Survey Bull. 9, 2d ser., p. 120, pl. 4, f. 1-2.

Nematopora alternata Ulrich
Base of Cincinnati Group
Near Thebes, Alexander Co., Ill.
ISGS (ISM) 2706
Holotype? or figured syntype?

Ulrich, E.O., 1890, GSI v. 8, p. 646, pl. 29, f. 8?, 8a.

This specimen, although marked as "Type," does not appear to correspond entirely to f. 8.

See also ISGS (ISM) 2690-3, *N. alternata* Ulrich on same slab with *N. delicatula* Ulrich.

Nematopora delicatula Ulrich
Cincinnati Group
Near Thebes, Alexander Co., Ill.
ISGS (ISM) 2690-1
Holotype? or figured syntype?

Ulrich, E.O., 1890, GSI v. 8, p. 646, pl. 29, f. 11, 11a.

Also specimens of *N. retrorsa* (2690-2) and *N. alternata* (2690-3) on same slab.

Nematopora fragilis Ulrich
Cincinnati Group
Alexander Co., Ill.
ISGS (ISM) 2691-2
2 Syntypes

Ulrich, E.O., 1890, GSI v. 8, p. 646. Specimen figured as pl. 29, f. 10 should be ISM 2684, but that is missing. This specimen bears Ulrich's label as type and figured specimen, citing pl. 29, f. 10, so possibly the specimen was inadvertently catalogued twice. However, neither specimen on this slab matches perfectly with fig. 10.

2691-1 = *N. retrorsa* Ulrich, on same slab.

Nematopora retrorsa Ulrich
Base of Cincinnati Group
Alexander Co., Ill.
ISGS (ISM) 2681
Holotype? or figured syntype?

Ulrich, E.O., 1890, GSI v. 8, p. 645, pl. 29, f. 9, 9a? and 9b?

See also ISGS (ISM) 2690-2 and 2691-1 (both = *N. retrorsa*).

Neochonetes smithi (Norwood and Pratten)
See *Chonetes smithi* Norwood and Pratten

Neozaphrentis parasitica (Worthen)
See *Zaphrentis parasitica* Worthen

Nicholsonella cumulata Ulrich
Cincinnati Group
Wilmington, Ill.
ISGS (ISM) 2673-A/C
3 Syntypes
2673-A = Fig'd. syntype
2673-B/C = Unfigured syntypes

Ulrich, E.O., 1890, GSI v. 8, p. 423, pl. 33, f. 6, 6a.

4 thin sections made from figured syntype, 2673-A, by June Ross about 1962-63.

See also USNM 43781, "Cotypes and figured sections...pl. 33, f. 6b, 6c," *vide* Schuchert's 1905 catalog. Also at the USNM in 1971 under the number 43781 were 5 pieces marked "Remainder of sectioned spec." and 1 tray with numerous specimens marked "Cotypes."

Nicholsonella ponderosa Ulrich
Trenton Group
Dixon, Ill.
ISGS (ISM) 8735-A
"Type" (Paratype)

Ulrich, E.O., 1890, GSI v. 8, p. 422.

Bork, Kennard B., and T.G. Perry, 1968, Jour. Paleo., v. 42 (2), p. 352-354.

1 thin section made by June Ross about 1962-63.

See also USNM 43392, "Holotype and figured sections...pl. 34, f. 5-5d," *vide* Schuchert's 1905 catalog.

A visit to the U.S. National Museum in 1971 confirmed that ISGS (ISM) 8735-A is a piece of their "paratype" numbered 43392-1, unfigured. The broken edges of the pieces matched perfectly. They also have 43392, "holotype," 1 large piece and several fragments, after sectioning, and 6 slides (this "holotype" is the specimen figured by Ulrich, pl. 34, f. 5); 43392-1, marked paratype, 2 pieces and 2 slides; 43392-2, 3 pieces and 2 slides; 43392-4, 2 pieces and 1 slide. LSK 11/4/71

***Nucula illinoensis* Worthen** ISGS (ISM) 2519-A/C
Oolitic bed of St. Louis limestone 2519-A = Fig'd. syntype,
(probably Ste. Genevieve); Miss. Worthen pl. 19, f. 4, 4a
Monroe Co., Ill. = "Holotype," Schenck, pl. 7, f. 15-16
Collected by 2519-B = Unfig'd. syntype, Worthen
A.H. Worthen = "Paratype," Schenck, pl. 7, f. 13-14
2519-C = Unfig'd. syntype

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 15; Worthen, 1890, GSI v. 8, p. 128, pl. 19, f. 4, 4a.

Schenck, H.G., 1939, Jour. Paleo., v. 13 (1), p. 22, pl. 7, f. 13-16.

***Nuculopsis* cf. *N. croneisi* Schenck**
See *Yoldia* n. sp. Meek

***Odontocephalus* sp?** ISGS (ISM) 4686-1/3
Onondaga beds; Devonian 4686-1 = Fig'd. specimen
Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 416, pl. 9, f. 10.

***Odontocephalus aegeria* Hall**
See *Dalmanites (Odontocephalus) aegeria* Hall

***Onychocrinus distensus* Worthen** ISGS (ISM) 2442-1/2
St. Louis Group; Miss. Syntypes
Monroe Co., Ill. 2442-1 = Fig'd. syntype
2442-2 = Unfig'd. syntype

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 31; Worthen, 1883, GSI v. 7, p. 307, pl. 29, f. 5.

Name was changed in catalog and on a later label to *Onychocrinus magnus* Worthen.

Springer, Frank, 1920, The Crinoidea Flexibilia, Smithsonian Institution, p. 436, p. 73, f. 8.

***Onychocrinus exculptus* Lyon** ISGS (ISM) 1822-A, B?, C?
and Casseday 1822-A = Spec. used for
Keokuk Group measurements?
Crawfordsville, Ind.

Van Sant, Jan F., and N. Gary Lane, 1964, Univ. Kansas Paleont. Contrib., Echinodermata, Art. 7, p. 101.

Three specimens under this catalog number were returned from R.C. Moore and Jan Van Sant 12/8/65, but Van Sant (p. 101) indicates he had only one. Measurements given do not appear to be those of any of these specimens. A note by Van Sant indicates that ISGS (ISM) 1822-B is probably *Onychocrinus ulrichi* and came from Indian Creek.

***Onychocrinus ramulosus* (Lyon and Casseday)** ISGS (ISM) 1806-A/B
1806-A = Spec. used for
Keokuk Group; Lower Carboniferous measurements
Crawfordsville, Ind.

Van Sant, Jan F., and N. Gary Lane, 1964, Univ. Kansas Paleont. Contrib., Echinodermata, Art. 7, p. 101-102. Specimen used for measurements, p. 102 (catalog number given as 1819 by error on p. 102, line 14).

***Orbiculoidea varsoviensis* (Worthen)**
See *Discina varsoviensis* Worthen

***Orophocrinus fusiformis* Wachsmuth and Springer** ISGS (ISM) 13444
Figured specimen

Kinderhook beds (Hampton Formation, *vide* Macurda); Miss. LeGrand, Iowa
= *Pyramibrastus fusiformis* (Wachsmuth and Springer). Macurda, D.B., Jr., 1964, Univ. Michigan Contrib. Mus. Paleont. V. 19 (8), p. 105-114, text fig. 1, pl. 1, f. 1-2. The description of Macurda's new genus, *Pyramibrastus*, was based largely on this specimen.

This specimen was originally catalogued in the Ill. State Mus. as No. 2626, but later, for a reason unknown to me, changed to 13444.

***Orthis resupinoides* Cox** ISGS (ISM) 2600-1/3
Lower Coal Measures Figured specimens
Mercer Co., Ill. 2600-1 = F. 4, 4a
Collected by Tyler McWhorter 2600-2 = F. 4b
2600-3 = Not figured

Worthen, A.H., 1890, GSI v. 8, p. 106, pl. 11, f. 4, 4a, 4b.

= *Schizophoria resupinoides* (Cox) in Schuchert and Cooper, 1932, Peabody Mus. Nat. Hist. Memoir v. 4, pt. 1, p. 143.

***Orthoceras angulatum* Wahlenberg** ISGS (ISM) 2157
Niagara limestone; Silurian Figured specimen
Joliet, Ill.

Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 504, pl. 24, f. 8, 8a.

= *Kionoceras cancellatum* Hall, according to a note in the box by A. Foerste, 1919.

***Orthoceras crebristriatum* Meek and Worthen** ISGS (ISM) 2210
Foerste's figured
Niagara Group; Upper Silurian specimen, pl. 54, f. 1
Joliet, Ill.

Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 255; Worthen and Meek, 1875, GSI v. 6, p. 503, not pl. 26, f. 2.

= *Gelsonoceras crebristriatum* (Meek and Worthen) in Foerste, A.F., 1928, Denison Univ. Bull., v. 28 (10), Jour. Sci. Lab., v. 23 (7), p. 252, pl. 54, f. 1.

Foerste called this specimen the "type," but it was not figured by Meek and Worthen and none of the original labels nor the catalog refer to it as a type. The only label that calls it a "type" is one that was probably made by A.R. Crook when he lent the specimens to A.F. Foerste about 1919. Foerste also refers to the "smaller specimen figured by" Meek and Worthen, but they figured only one (ISM 12105 = U.I. X-118). Meek and Worthen's measurements, in the original description, correspond to ISGS (ISM) 2210.

In Worthen's handwritten catalog, in his handwriting, ISM 12105 (= U.I. X-118) is designated as "type." This is the specimen figured by Worthen and Meek, GSI v. 6, pl. 26, f. 2, and as *Eurodoceras indianense* (Miller) by Foerste, pl. 54, f. 2. Hansman and Scott, 1967, in their catalog of the U.I. Worthen Collection, call this specimen a "paratype."

Orthoceras illinoiensis Worthen ISGS (ISM) 2484-A/B
Chester limestone; Miss. **Syntypes**
Chester, Ill. **2484-A = f. 1**
Collected by A.H. Worthen **2484-B = f. 1a**

Worthen, A.H., 1883, GSI v. 7, p. 323; Worthen, 1890, GSI v. 8, p. 148, pl. 26, f. 1, 1a, 1b.

Orthoceras jolietense Meek and Worthen ISGS (ISM) 2207
Upper Silurian **Holotype**
Joliet, Ill.

Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 256; Worthen and Meek, 1875, GSI v. 6, p. 505 (misprinted as 465), pl. 26, f. 5.

Orthoceras lasallensis Worthen ISGS (ISM) 2486
Roof of middle coal seam; Penn. **Holotype**
LaSalle, Ill.
Collected by A.H. Worthen

Worthen, A.H., 1883, GSI v. 7, p. 324; Worthen, 1890, GSI v. 8, p. 149, pl. 26, f. 4, 4a.

Orthoceras niagarensis Hall
See *Cycloceras niagarensis* (Hall)

Orthoceras okawensis Worthen ISGS (ISM) 2485-A/D
Chester limestone; Miss. **Syntypes**
Vicinity of Okaw bluffs near **2485-A = Fig'd. syntype,**
Red Bud, Randolph Co., Ill. **pl. 26, f. 3**
Collected by A.H. Worthen

Worthen, A.H., 1883, GSI v. 7, p. 324; Worthen, 1890, GSI v. 8, p. 149, pl. 26, f. 3.

Orthoceras subbaculum Meek and Worthen ISGS (ISM) 7771
Joliet member of Niagara; Silurian **Holotype**
Joliet, Ill.

Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 256.

Foerste, August F., 1928, Denison Univ. Bull., v. 28 (10), (Jour. Sci. Lab., v. 23 (7)), p. 245, pl. 49, f. 1.

Orthoceras unionensis Worthen ISGS (ISM) 2219
Red layers at base of Niagara; Upper Silurian **Holotype**
Union Co., Ill.

Worthen, A.H., In A.H. Worthen and F.B. Meek, 1875, GSI v. 6, p. 505 (misprinted as 465), pl. 26, f. 4.

Orthoceras woodworthi McChesney
See *Kionoceras scammoni* (McChesney)

Orthonema carbonaria Worthen ISGS (ISM) 2533
Coal Measures **Holotype**
Peoria Co., Ill.
Collected by Mr. Gifford

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 7; Worthen, 1890, GSI v. 8, p. 145, pl. 24, f. 4, 4a.

Pachydictya fenestelliformis var. ISGS (ISM) 2671
orticula Ulrich **Holotype**
Cincinnati Group; Ord.
Wilmington, Will Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 526, pl. 31, f. 1.

1 specimen, 2 fragments cut from the same specimen, and 3 thin sections made by June Ross about 1962-63.

Pachydictya firma Ulrich ISGS (ISM) 2675-A/B
Cincinnati Group; Ord. **2 Syntypes**
Wilmington, Will Co., Ill. **2675-A = Pl. 31, f. 2, 2a**
2675-B = Unfigured

Ulrich, E.O., 1890, GSI v. 8, p. 525, pl. 31, f. 2, 2a.

See also *Pachydictya splendens* Ulrich.

Six slides, 3 from each specimen, made by J.R.P. Phillips, 1959.

2675-A/B were catalogued as *P. splendens*, but 2675-A is obviously the specimen figured as *P. firma* Ulrich.

See also USNM 43783; "Figured sections of cotype...pl. 31, f. 2b, 2c, 2d, 2f," *vide* Schuchert's 1905 catalog.

Pachydictya gigantea Ulrich ISGS (ISM) 2669
Cincinnati Group; Ord. **Holotype**
Wilmington, Will Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 524, pl. 31, f. 3, 3a.

Four thin sections prepared by June Ross about 1963.

See also USNM 43784, "Figured sections of cotype...pl. 31, f. 3b-e," *vide* Schuchert's 1905 catalog.

Pachydictya intermedia Ulrich
See *Pachydictya splendens* Ulrich

Pachydictya splendens Ulrich ISGS (ISM) 2670-A/B
Cincinnati Group; Ord. **2 Syntypes**
Wilmington, Will Co., Ill. **2670-A = Pl. 32, f. 1, 1a**
2670-B = Pl. 31, f. 2g

Ulrich, E.O., 1890, GSI v. 8, p. 523, pl. 31, f. 2g; pl. 32, f. 1, 1a.

Four thin sections made from 2670-A by J.R.P. Ross about 1963.

Ulrich's labels on the specimens read *P. intermedia*, but apparently the name was changed before publication. LSK 3/6/68.

See also USNM 43785, "Figured sections of cotype...pl. 32, f. 1b," *vide* Schuchert's 1905 catalog.

Pachydictya splendens Ulrich
See also *Pachydictya firma* Ulrich

Pachylocrinus nauvoensis (Worthen)
See *Poteriocrinus nauvoensis* Worthen

Pachylocrinus nodobasalis (Worthen)
See *Poteriocrinus nodobasalis* Worthen

- Pachylocrinus okawensis* (Worthen)
See *Poteriocrinus okawensis* Worthen
- Pachylocrinus popensis* (Worthen)
See *Poteriocrinus popensis* Worthen
- Pachylocrinus propinquus* (Worthen)
See *Poteriocrinus propinquus* Worthen
- Pachylocrinus spinobrachiatus* (Worthen)
See *Poteriocrinus spinobrachiatus* Worthen
- Pachylocrinus varsoviensis* (Worthen)
See *Poteriocrinus varsoviensis* Worthen
- Palaeacis enorme* var. *depressus* (Meek and Worthen)
See *Sphenopoterium enorme* var. *depressum* Meek and Worthen
- Palaeoneilo oweni* (McChesney)
See *Yoldia* n. sp. Meek
- Palaeoneilo oweni* (McChesney)
See *Yoldia knoxensis* McChesney
- Palaeostylus (Pseudozygopleura) peoriensis* (Worthen)
See *Laxonema peoriensis* Worthen
- Palasterina (Schoenaster) fimbriata* Meek ISGS (ISM) 1894
and Worthen Syntype
St. Louis Limestone; Miss.
Monroe Co., Ill.
- Meek, F.B., and A.H. Worthen, 1860, Acad. Nat. Sci.
Philadelphia Proc., p. 449.
- = *Schoenaster fimbriatus* Meek and Worthen, 1866, GSI v. 2, p.
278, pl. 19, f. 7d (not fig. 7a, which is ISM 10071 = U.I. X-359).
ISGS (ISM) 1894 consists of an impression of an almost
complete specimen and fragments of 2 arms peeled off.
One of these is part of the specimen shown as f. 7d.
- Papillulunaria hemisphaerica* (Ulrich)
See *Crepipora hemisphaerica* Ulrich
- Paradichocrinus polydactylus* (Casseday and Lyon)
See *Dichocrinus expansus* Meek and Worthen
- Paragassizocrinus? carbonarius* (Worthen)
See *Agassizocrinus carbonarius* Worthen
- Parulocrinus verrucosus* (White and St. John)
See *Eupachyrinus bassetti* Worthen
- Pellecrinus hexadactylus* (Lyon and Casseday)
See *Barycrinus lyoni* (Hall)
- Pentremites (Granatocrinus) granulosus* Meek and Worthen
Keokuk Group; Miss.
Warsaw, Hancock Co., Ill.
- ISGS (ISM) 1843-A/B
1843-A = Spec. figured
by Fay, pl. 41, f. 7-9,
and called "holotype"
1843-B = Not figured
- Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci.
Philadelphia Proc., p. 165.
- = *Granatocrinus granulosus* Meek and Worthen, 1873, GSI v. 5,
p. 508, not pl. 15, f. 10a, 10b. The specimen figured by Wor-
then is almost certainly U.I. X-567 (ISM 10145). This
specimen was designated in Worthen's handwritten
catalog, in his own handwriting, as the "type" figured, but
the drawing is not adequate for a positive identification.
LSK, 11/27/78.
- = *Schizoblastus? granulosus* (Meek and Worthen) in Etheridge
and Carpenter, 1886, British Museum Catalog, p. 223.
- = *Poroblastus granulosus* (Meek and Worthen) in Fay, R.O.,
1961, Univ. Kansas Paleont. Contrib., Echinodermata, art. 3,
p. 97, pl. 41, f. 7-9. ISGS (ISM) 1843-A was figured by Fay and
called "holotype" by him. The species was designated as
type species of the genus. This is not the specimen figured
by Meek and Worthen, 1873. There was no designation in
the Ill. State Mus. catalog, nor on the original Worthen Col-
lection labels that ISGS (ISM) 1843-A or 1843-B was a type
or figured specimen. The number 713, which Fay gave im-
mediately following the word holotype, on p. 98, was a
locality designation only and not a catalog number. LSK,
11/17/78.
- Pentremites obesus* Lyon? ISGS (ISM) 2575
Chester limestone; Miss. Figured specimen
Monroe Co., Ill.
Collected by E.O. Ulrich
- Worthen, A.H., 1890, GSI v. 8, pl. 14, f. 10, 10a (no description in
text).
- Pentremites (Tricoelocrinus) varsoviensis* Worthen ISGS (ISM) 1885-1/2
Warsaw beds; Miss. Unfigured syntypes?
Monroe Co., Ill. Fig'd. by Fay:
1885-1 = Pl. 19, f. 9
1885-2 = Pl. 50, f. 1-3 and
pl. 52, f. 6
- Worthen, A.H., 1875, GSI v. 6, p. 521, not pl. 31, f. 8-9.
- = *Metablastus varsoviensis* (Worthen) in Fay, R.O., 1961, Univ.
Kansas Paleont. Contrib., art. 3, p. 80, pl. 19, f. 9; pl. 50, f.
1-3; pl. 52, f. 6. Fay called these two specimens syntypes,
but they are not the specimens figured by Worthen and they
were not specifically referred to by Worthen in his descrip-
tion. According to the Hansman and Scott catalog, 1967, of
the U.I. Worthen Collection, the specimens and types
figured by Worthen are U.I. X-48 (ISM 10078). In Worthen's
original handwritten catalog, in his handwriting, he called
ISM 10078 (2 specimens) "Type." In the U.I. Worthen collec-
tion, under the number U.I. X-48 (ISM 10078) are two
specimens. One, bearing the diamond sticker, is Worthen's
fig. 9. The other may possibly be represented by Worthen's
fig. 8, but if so the illustration is somewhat generalized and
reduced in size. This specimen may be an unfigured syn-
type. LSK 11/27/78.
- ISGS (ISM) 1885-2 is the specimen figured by Fay, March 1961,
Okla. Geol. Notes, v. 21 (3), p. 92-93, text fig. 1-2, and er-
roneously identified as *Tricoelocrinus woodmani* (Meek
and Worthen), 1868. Correction was noted by Fay, July
1962, in Okla. Geol. Notes, v. 22 (7), p. 188.

- Perischodonus illinoiensis* Worthen and Miller ISGS (ISM) 2483
Holotype
Chester limestone; Miss.
Bay City, Pope Co., Ill.
Collected by A.H. Worthen
Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 333, pl. 31, f. 8.
- Phacelocrinus columbiensis* (Worthen)
See *Poteriocrinus columbiensis* Worthen
- Phacelopora pertenuis* Ulrich ISGS (ISM) 2682
Syntypes
Top of Trenton or base of Cincinnati Group; Ord.
Thebes, Alexander Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 406, pl. 29, f. 1, 1a?
See also USNM 43272, "Cotypes and figured sections ...pl. 29, f. 1b, 1c," *vide* Schuchert's 1905 catalog.
- Phillipsia tuberculata* Meek and Worthen ISGS (ISM) 4283
Holotype
Burlington Limestone; Miss.
Pike Co., Ill.
Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 52.
Worthen, A.H., 1870, GSI v. 4, p. 30 (reference to locality and occurrence only).
Hessler, R.R., 1963, Jour. Paleol., v. 37 (3), p. 553, pl. 61, f. 1, 2, 6.
- Phractopora pinnata* Ulrich
See *Glyptopora pinnata* Ulrich
- Phractopora trifolia* (Rominger)
See *Prismopora trifolia* (Rominger)
- Phylloporina granistriata* Ulrich ISGS (ISM) 2696
Syntype
Base of Cincinnati Group; Ord.
Near Thebes, Alexander Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 639, pl. 29, f. 3, 3a.
- Pinnatopora bellula* Ulrich ISGS (ISM) 4482-1/2
Syntypes
Seville (coal No. 1), base of Coal Measures
Seville, Fulton Co., Ill.
4482-1 = F. 8, 8b
4482-2 = F. 8a
Ulrich, E.O., 1890, GSI v. 8, p. 619, pl. 66, f. 8, 8a-b.
- Pinnatopora striata* Ulrich ISGS (ISM) 4470
"Type" = holotype?
Keokuk Group; Miss.
Bentonsport, Iowa
Ulrich, E.O., 1890, GSI v. 8, p. 617, pl. 66, f. 4d.
- Pinnatopora tenuiramosa* Ulrich ISGS (ISM) 4483-1
"Type" = Holotype?
Waverly Group; Miss.
Richfield, Ohio
Ulrich, E.O., 1890, GSI v. 8, p. 619, pl. 66, f. 7.
- Plagioglypta illinoiensis* (Worthen)
See *Dentalium illinoiensis* Worthen
- Platyceras (Orthonychia) pyramidatum* Hall ISGS (ISM) 2174
Figured specimen
Upper Silurian
Bailey's Landing, Perry Co., Mo.
Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 389, pl. 7, f. 11.
- Platyceras spirale* Hall ISGS (ISM) 2194-A/D
2194-A = Figured specimen,
Upper Silurian pl. 7, f. 12c
Bailey's Landing, Perry Co., Mo. 2194-B/D - Not figured
Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 389, pl. 7, f. 12c.
- Platyceras spirale* Hall ISGS (ISM) 4570-A/B
Oriskany Group; Dev. 4570-A = Figured specimen,
Bald Rock, Jackson Co., Ill. pl. 8, f. 10
4570-B - Mentioned in text, p. 406
Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 406, pl. 8, f. 10.
(Originally catalogued in the old Illinois State Museum catalog as *P. tortuosum*, but figured as *P. spirale*.)
- Platyceras subundatum* Meek and Worthen ISGS (ISM) 2195-A/C
Syntypes
Upper Silurian 2195-A = F. 13a
Bailey's Landing, Perry Co., Mo. 2195-B = F. 13b?
2195-C - Not figured
Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 387, pl. 7, f. 13a-b. (Specimen shown in f. 14a-b is missing. LSK 4/11/78).
- Platyceras tortuosum* Hall
See *Platyceras spirale* Hall
- Platycrinites hemisphericus* (Meek and Worthen)
See *Platycrinus hemisphaericus* Meek and Worthen
- Platycrinus hemisphaericus* ISGS (ISM) 1818-A/C
Meek and Worthen 1818-A = Fg. spec., M. & W.,
Keokuk Group; Miss. pl. 16, f. 6a-b
Crawfordsville, Ind. = Spec. used for measurements,
Van Sant, p. 126
1818-B/C - Not figured
Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia, Proc., p. 162; Worthen, 1868, GSI v. 3 p. 511.
= *Platycrinites hemisphericus* (Meek and Worthen), 1873, GSI v. 5, p. 506, pl. 16, f. 6a, 6b (specimen shown as f. 6c is missing).
Van Sant, Jan F., in Van Sant, Jan F., and N. Gary Lane, 1964, Univ. Kansas, Paleont. Contrib., Echinodermata, art. 7, p. 125-126. Van Sant refers to ISGS (ISM) 1818-A as the holotype and gives its measurements in his table, but this specimen was not illustrated till 1873 (v. 5). The first specimen Meek and Worthen illustrated (1868, v. 3, pl. 20, f. 2a, 2b) was ISM 10120-B = U.I. X-143. The original description included no illustrations.
- Platycrinus monroensis* Worthen ISGS (ISM) 2461
Holotype
St. Louis Group; Lower Carboniferous
Blount Co., Tenn.
Collected by A.H. Worthen
Worthen, A.H., 1882, Illinois State Mus. Nat. Hist., Bull. 1, p. 30;
Worthen, 1883, GSI v. 7, p. 306, pl. 30, f. 9.

= *Platycrinus sarae* Hall, 1858 (identification by Charles Wachsmuth).

Platycrinus saffordi (Troost ms., 1850) Hall **ISGS (ISM) 1838-A/B**
Syntypes
Keokuk Group; Miss. **1838-A = F. 5**
Warsaw and Nauvoo, Ill. **1838-B = F. 6**

Hall, James, 1858, Rept. Geol. Survey Iowa, v. 1, pt. 2, p. 634, pl. 18, f. 5, 6.

Plaxocrinus?? sancti-ludovici (Worthen)
See *Eupachycrinus? sancti-ludovici* Worthen

Pleurodictyum problematicum **ISGS (ISM) 4769-A/C**
Goldfuss? **Figured specimens**
Corniferous Group (Onondaga) **4769-A = F. 1a?**
(probably Dutch Creek ss.); Dev. **4769-B = F. 1b**
"Yellowish friable sandstone, referred to the horizon of the Onondaga period of the New York series; four miles west of Jonesboro, Union County, Illinois." **4769-C = F. 1c**

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 407, pl. 9, f. 1a-c.

Pleurophorus? angulatus Meek and Worthen **ISGS (ISM) 2875**
Upper Coal Measures **Holotype**
Wabash cut-off, near New Harmony, Posey Co., Ind.

Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 247; Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 529, pl. 33, f. 5.

Pleurophorus chesterensis Worthen **ISGS (ISM) 2501**
Chester limestone; Miss. **Holotype**
Chester, Randolph Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 16; Worthen, 1890, GSI v. 8, p. 123, pl. 20, f. 6.

Pleurophorus minima Worthen **ISGS (ISM) 2524**
Oolitic beds of St. Louis ls.; Miss. **Holotype**
Monroe Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 17; Worthen, 1890, GSI v. 8, p. 124, pl. 20, f. 4, 4a.

= *Macrodon minima* (Worthen), *vide* Ulrich 1892.

Pleurophorus monroensis Worthen **ISGS (ISM) 2523-A/B**
Oolitic beds of the St. Louis Group; **Syntypes**
Miss. Monroe Co., Ill. **2523-A = F. 3, 3a**
Collected by A.H. Worthen **2523-B = Not figured**

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 17; Worthen, 1890, GSI v. 8, p. 125, pl. 18, f. 3, 3a.

See also the note under *Solenomya monroensis* Worthen, 2515, indicating Ulrich's opinion that that form and this one are identical.

Pleurotomaria adamsi Worthen **ISGS (ISM) 2536-A/E**
Coal Measures **Syntypes**
Peoria Co., Ill. **2536-A = F. 57, 5a?**
Collected by W.H. Adams **2536-B/E = Unfigured**

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 5; Worthen, 1890, GSI v. 8, p. 137, pl. 23, f. 5, 5a.

= *Yvania adamsi* (Worthen) in Weller, J.M., 1929, Illinois State Geol. Survey, R.I. 18, p. 30-32. In 1928 Weller borrowed from the Ill. State Mus. in Springfield what was supposed to be the type of *P. adamsi* Worthen. He noted that the specimen lent him was not a *Pleurotomaria* at all, and the type was presumed lost or misplaced. By the time (1961) I worked on the collections, after they had been moved from Springfield to the Illinois State Geological Survey in Urbana, there were 5 specimens in the tray, all numbered 2536. I don't know what specimen had been lent to Weller, but apparently none of these. One of these, now marked 2536-A, bears the diamond sticker Worthen used to indicate types and appears to be the specimen Worthen figured, though Worthen's drawings are too poor to permit positive identification. LSK 4/13/78

= *Baylea adamsi* (Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 34.

Pleurotomaria coxana Worthen
See *Pleurotomaria iowaensis* Worthen

Pleurotomaria giffordi Worthen **ISGS (ISM) 2535-A/E**
Coal Measures **Syntypes**
Peoria County, Ill. **2535-A = Fig'd. syntype?**
Collected by Mr. Gifford **2535-B/E = Unfigured**

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 5; Worthen, 1890, GSI v. 8, p. 135, pl. 23, f. 8, 8a.

= *Yvania giffordi* (Worthen) in Weller, J.M., 1929, Illinois State Geol. Survey, R.I. 18, p. 36-38. In 1928 Weller borrowed two types of *P. giffordi* from the Illinois State Museum in Springfield. One of these, 2535-A, he called the holotype (1929, p. 38), and used to make plaster casts which he called "plastoholotype" and are now #24 in the ISGS collections. By the time (1961) I worked on the collections there were 5 specimens in the tray under ISGS (ISM) 2535. Slips of paper on which the specimens had been glued would appear to indicate there were 5 specimens under this number, but a label with the number 4060, in the same tray also indicated the possibility that two lots of specimens were combined. The locality and age information on the label and in the catalog are the same for 4060 as for 2535. LSK 4/17/78.

= *Baylea giffordi* (Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 35.

Pleurotomaria illinoiensis Worthen **ISGS (ISM) 2530-A/B**
Black limestone over **Syntypes**
one of the lower coal seams **2530-A = Fig'd. syntype =**
Mercer Co., Ill. **Sturgeon's lectotype,**
Collected by A.H. Worthen **pl. 121, f. 14**
2530-B = Unfig'd. syntype =
Sturgeon's paralectotype,
pl. 121, f. 10-13.

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 4; Worthen, 1890, GSI v. 8, p. 135, pl. 23, f. 6, 6a, 6b.

= *Trepsira (Trepsira) illinoensis* (Worthen) in Sturgeon, M.T., 1964, Jour. Paleol., v. 38 (4), p. 741, pl. 121, f. 10-14. ISGS (ISM) 2530-B was accidentally damaged and further exfoliated during Sturgeon's study.

= *Trepsira (Trepsira) illinoensis* (Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 184.

Pleurotomaria iowensis Worthen ISGS (ISM) 2547
Keokuk limestone; Miss. Holotype
Keokuk, Iowa
Collected by Mr. L.A. Cox

= *Pleurotomaria coxana* in Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 6; Worthen, A.H., 1890, GSI v. 8, p. 138, pl. 24, f. 2. (Name changed because *P. coxana* was preoccupied).

Pleurotomaria montezuma Worthen ISGS (ISM) 2487
Burlington limestone; Miss. Holotype
Montezuma, Pike Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1883, GSI v. 7, p. 324; Worthen, 1890, GSI v. 8, p. 136, pl. 24, f. 5.

Pleurotomaria nauvoensis Worthen ISGS (ISM) 2493
Keokuk limestone; Miss. Holotype
Nauvoo, Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Illinois State Mus. Nat. Hist. Bull. 2, p. 5; Worthen, 1890, GSI v. 8, p. 137, pl. 25, f. 3.

Polypheopsis? keokuk Worthen ISGS (ISM) 2494
Keokuk limestone; Miss. Holotype
Keokuk, Iowa
Collected by Mr. L.A. Cox of Keokuk

Worthen, A.H., 1884, Illinois State Mus. Nat. Hist. Bull. 2, p. 9; Worthen, 1890, GSI v. 8, p. 144, pl. 23, f. 3.

= *Holopea keokuk* (Worthen) in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 97.

Polypora biseriata Ulrich ISGS (ISM) 2803
St. Louis Group; Miss. Syntypes
Monroe Co., Ill. 10 fragments

Ulrich, E.O., 1890, GSI v. 8, p. 592, pl. 60, f. 4, 4a-b. The largest of the 10 fragments bears the diamond sticker commonly used to indicate a type, but otherwise I cannot determine which piece was actually illustrated. LSK 4/17/78.

Polypora burlingtonensis Ulrich ISGS (ISM) 2765
Burlington Group; Miss. "Type"
Henderson Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 587, pl. 59, f. 2, 2a.

Polypora cestriensis Ulrich ISGS (ISM) 2831-1
Chester Group; Miss. Syntype
2 miles east of Anna, Union Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 594, pl. 60, f. 7, 7a. This specimen is clearly marked in Ulrich's handwriting as his "type" for fig. 7. However the frond does not match the drawing in detail and part of the frond on the right side in the drawing has been removed from the specimen. LSK 4/17/78.

See also USNM 43792, "Cotype and figured sections ...pl. 55, f. 4-4b; pl. 60, 7b-7e," *vide* Schuchert's 1905 catalog.

Polypora corticosa Ulrich ISGS (ISM) 2802-1/3
Chester limestone; Miss. 3 Syntypes
Chester, Randolph Co., Ill. 2802-1 = Pl. 60, f. 5, 5a
and Pl. 61, f. 1
2802-2 = Pl. 60, f. 5b
2802-3 = Pl. 60, f. 5c

Ulrich, E.O., 1890, GSI v. 8, p. 596, pl. 60, f. 5, 5a-c; pl. 61, f. 1.

Polypora crassa Ulrich ISGS (ISM) 2743
Upper Coal Measures Holotype
Sugar Creek, Sangamon Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 603, pl. 61, f. 8, 8a.

Polypora gracilis Prout ISGS (ISM) 2816-1/2
Keokuk Group; Miss. 2816-1 = Fig'd. specimen
Near Warsaw, Hancock Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 590, pl. 61, f. 10.

See also USNM 43789, "Plesiotype...pl. 61, f. 10a," *vide* Schuchert's 1905 catalog.

The specimen figured in GSI v. 2, pl. 21, f. 1 was catalogued by Worthen in his handwritten catalog as ISM 10711. Its present whereabouts is unknown. It could possibly be the same specimen as listed in the Hansman and Scott catalog of the U.I. Worthen Collection as U.I. X-35, also listed as missing in 1967.

Polypora halliana Prout ISGS (ISM) 2796
Keokuk Group; Miss. Figured specimen?
Keokuk, Iowa Fragments of 3 or 4 specimens

Ulrich, E.O., 1890, GSI v. 8, p. 587, pl. 59, f. 5?; 5a?

One of these fragments bears the diamond sticker indicating it is a "type" or figured specimen, but it is not otherwise labelled as a type. I cannot match it up with the enlarged drawing.

See also USNM 44073, "Plesiotype and figured sections...pl. 59, f. 5b-c," *vide* Schuchert's 1905 catalog.

Polypora hamiltonensis (Prout)
See *Retepora hamiltonensis* Prout

Polypora nodocarinata Ulrich ISGS (ISM) 2806
Upper Coal Measures 2 Syntypes
Crooked Creek near Centralia, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 601, pl. 61, f. 9? 9a?

Both of these specimens are clearly marked in Ulrich's handwriting as "Type. Pl. 61," but I cannot match them with either illustration. The illustrations show only the frontal surfaces. The larger specimen shows only the back (though part of it could have been removed to expose the front). The smaller specimen does not correspond with either illustration. LSK 4/18/78.

Polypora spininodata Ulrich ISGS (ISM) 2786
Warsaw beds; Miss. Syntype
Warsaw, Hancock Co., Ill.
Collected by A.H. Worthen

Ulrich, E.O., 1890, GSI v. 8, p. 594, pl. 60, f. 3.

Polypora spinulifera Ulrich
Chester Group; Miss.
Chester, Randolph Co., Ill.
ISGS (ISM) 2805
Syntype

Ulrich, E.O., 1890, GSI v. 8, p. 598, pl. 61, f. 2, 2a.

Polypora spinulifera var. Ulrich
Coal Measures
Montgomery Co., Ill.
ISGS (ISM) 2772
Syntype

Ulrich, E.O., 1890, GSI v. 8, p. 599, pl. 61, f. 3, 3a.

See also USNM 43790, "Cotype...pl. 61, f. 4, 4a," *vide* Schuchert's 1905 catalog.

This specimen shows only the obverse side. Probably fig. 3a was drawn from a small portion that was removed to show the reverse. The part that was removed is now missing or it could possibly be the specimen that is in the USNM.

Polypora tuberculata Prout
Chester Group; Miss.
2751-1/2 from Chester,
Randolph Co., Ill.
2751-3 from Monroe Co., Ill.
ISGS (ISM) 2751-1/3
2751-1 = Fig'd. spec.,
pl. 60, f. 8

Ulrich, E.O., 1890, GSI v. 8, p. 595, pl. 60, f. 8.

Polypora whitei Ulrich
Seville ls.; Coal Measures
Seville, Fulton Co., Ill.
ISGS (ISM) 2820-6
Holotype?

Ulrich, E.O., 1890, GSI v. 8, p. 600, pl. 62, f. 2 (illustration is mirror image of specimen). On small slab with several other species.

Porcellia peoriensis Worthen
Lower Coal Measures
Peoria Co., Ill.
Collected by Mr. Gifford
ISGS (ISM) 2531-A/D
Syntypes
2531-A = Fig'd. syntype, pl. 23, f. 4
= Sturgeon's lectotype,
pl. 122, f. 2-3
2531-B = Fig'd. syntype,
pl. 23, f. 4a, 4b
= Sturgeon's paralectotype,
pl. 122, f. 1
2531-C/D = Unfig'd. syntypes
= Sturgeon's unfig'd. paralectotypes

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 6; Worthen, 1890, GSI v. 8, p. 138, pl. 23, f. 4, 4a, 4b.

Sturgeon, M.T., 1964, Jour. Paleol., v. 38 (4), p. 743, pl. 122, f. 1-3.

Poroblastus granulosis (Meek and Worthen)
See *Pentremites (Granatocrinus) granulosis* Meek and Worthen

Poteriocrinites (Zeacrinus?) concinnus Meek and Worthen
Keokuk Group; Miss.
Crawfordsville, Ind.
Collected by Mr. Corey
ISGS (ISM) 1808
Holotype

Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc. p. 26; Meek and Worthen, 1873, GSI v. 5, p. 490, pl. 14, f. 3.

Catalogued as *Scaphiocrinus concinnus* Meek and Worthen.

= *Cydropocrinus concinnus* (Meek and Worthen) in Van Sant, Jan, and N. Gary Lane, 1964, Univ. Kansas Paleont. Contrib., art. 7, p. 83, pl. 3, f. 14.

Poteriocrinites similis (Worthen, 1882)
See *Poteriocrinus similis* Worthen

Poteriocrinus arachnaeformis Worthen
Keokuk Group; Miss.
Warsaw, Hancock Co., Ill.
ISGS (ISM) 2464
Holotype

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 13; Worthen, 1883, GSI v. 7, p. 281, pl. 28, f. 12.

Poteriocrinus calyculus Hall
Lower Burlington limestone; Miss.
Burlington, Iowa
ISGS (ISM) 2071
Syntype

Hall, James, 1858, Rept. Geol. Survey Iowa, v. 1, pt. 2, p. 553, pl. 9, f. 6a-b. (Pl. 9, f. 6c is U.I. X-1088 (ISM 10318)). The diagram of plates given in Hall, 1859, Rept. Geol. Survey Iowa, v. 1, pt. 2, Supplement, pl. 2, f. 11, was probably drawn from one or both of these specimens. Another specimen was figured by Hall, 1872, Photo. plates of crinoids, pl. 6, f. 1, as *Scaphiocrinus calyculus* (present whereabouts unknown).

Poteriocrinus claytonensis Worthen
Warsaw beds; Miss.
Near Clayton, Adams Co., Ill.
ISGS (ISM) 2460
Holotype

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 18; Worthen, 1883, GSI v. 7, p. 288, pl. 30, f. 6.

Poteriocrinus clytis Worthen
Worthen 1882 and 1883 and the old Ill. State Mus. catalog give St. Louis limestone as the source. Only the 1892 label in the tray gives Chester Gr.
Monroe Co., Ill.
ISGS (ISM) 2456
Holotype

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 16; Worthen, 1883, GSI v. 7, p. 294, pl. 30, f. 10.

Poteriocrinus columbiensis Worthen
Chester Group; Miss.
Near Columbia, Monroe Co., Ill.
ISGS (ISM) 2438
Holotype

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 22; Worthen, 1883, GSI v. 7, p. 293, pl. 29, f. 6.

= *Phacelocrinus columbiensis* (Worthen) in Bassler and Moody, 1943, p. 646.

= *Aphelecrinus columbiensis* (Worthen) in Burdick and Strimpe, 1971, Univ. Kansas, Paleont. Contrib., Paper 51, p. 37.

Poteriocrinus coreyi Worthen
Keokuk Group; Miss.
Crawfordsville, Ind.
ISGS (ISM) 1820,
2074, 2408
Specimens used for
measurements
by Van Sant, 1964, p. 93

Worthen, A.H., in Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 516.

Not *Poteriocrinites (Scaphiocrinus) coreyi* Meek and Worthen, 1869, Acad. Nat. Sci. Philadelphia Proc., p. 148.

- Not Decadocrinus grandis* Wachsmuth and Springer, 1897, N. Amer. Crin. Cam., p. 138, pl. 7, f. 4-5.
- = *Histocrinus coreyi* (Worthen) in Bassler and Moodey, 1943, GSA Spec. Paper 45, p. 512.
- = *Histocrinus coreyi* (Worthen) Van Sant, in Van Sant and Lane, 1964, Univ. Kan. Paleont. Contrib., Echinodermata, Art. 7, p. 93.
- Re Van Sant's note on the type of this species, p. 93, bottom right hand column: Both of Worthen's two original specimens were lent to Moore, Van Sant, and Lane by the U.I. Dept. Geology for this study. They are U.I. X-1190 (ISM 10169) and were returned to the Dept. of Geology, via the ISGS 12/8/65. The upper half of the specimen figured by Worthen, pl. 29, f. 3a-b, was missing at that time. If either of those two specimens could be considered a holotype it would be that specimen (pl. 29, f. 3a-b) because of Worthen's referring to it as "the typical specimen," on p. 517, line 24. Van Sant figured the other specimen (Worthen's pl. 29, f. 2) and called it a neotype (bottom p. 93), and holotype in the explanation of pl. 4, f. 5.
- Poteriocrinus cultidactylus* Hall ISGS (ISM) 2471
Burlington limestone; Miss. Figured specimen
Montezuma, Pike Co., Ill.
- Hall, James, 1859, Iowa Geol. Survey, v. 1, pt. II, Supplement, p. 62. The specimen described by Hall, 1859, is U.I. X-802 (ISM 10334).
- = *Blothrocrinus cultidactylus* (Hall) in Bassler and Moodey, 1943, p. 334.
- Poteriocrinus dilatatus?* Hall- ISGS (ISM) 2001
Proboscis? Figured specimen
Lower Burlington limestone; Miss.
Cathoun Co., Ill.
Presented by Miss Eliza Reed
- Entered in old ISM catalog as "*Coeliocrinus* (ventral sac)."
- Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, pl. 4, f. 7. (Illustration only, no description).
- Poteriocrinus elsahensis* Worthen ISGS (ISM) 2580
Kinderhook Group; Miss. Holotype
Near Elsayh, Jersey Co., Ill.
Collected by A.H. Worthen
- Worthen, A.H., in Miller, S.A., 1889, N. Amer. Geol. Paleo., p. 274; Worthen, 1890, GSI v. 8, p. 88, pl. 14, f. 5.
- Poteriocrinus fountainensis* Worthen ISGS (ISM) 2455
St. Louis limestone; Miss. Holotype
Fountain Creek, Monroe Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 17; Worthen, 1883, GSI v. 7, p. 286, pl. 30, f. 11.
- = *Decadocrinus fountainensis* (Worthen) in Bassler and Moodey, 1943, p. 647.
- Poteriocrinus illinoiensis* Worthen ISGS (ISM) 2457
Warsaw beds; Miss. Holotype
Warsaw, Hancock Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 19; Worthen, 1883, GSI v. 7, p. 289, pl. 28, f. 17.
- Poteriocrinus kaskaskiensis* Worthen ISGS (ISM) 2452
Chester limestone; Miss. Holotype
Bluffs of the Kaskaskia River,
4 miles above Chester,
Randolph Co. Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 27; Worthen, 1883, GSI v. 7, p. 300, pl. 29, f. 15. Name was changed in Ill. State Mus. catalog to *Scaphiocrinus kaskaskiensis* (Worthen).
- = *Ampelocrinus kaskaskiensis* (Worthen) in Strimple, H.L., 1973, U. Kan. Paleont. Contrib., Paper 66, p. 22, f. 14.
- Poteriocrinus mammaeformis* Worthen ISGS (ISM) 2578
Warsaw beds; Miss. Holotype
Warsaw, Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 91 (not figured).
- Poteriocrinus nauvoensis* Worthen ISGS (ISM) 2465
Keokuk Group; Miss. Holotype
Nauvoo, Hancock Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 13; Worthen, 1883, GSI v. 7, p. 282, pl. 28, f. 10.
- = *Pachylocrinus nauvoensis* (Worthen) in Bassler and Moodey, 1943, p. 582.
- Poteriocrinus nodobasalis* Worthen ISGS (ISM) 2577-A/B
St. Louis limestone; Miss. 8227-A/B
Monroe Co., Ill. Syntypes
Collected by Mr. Henry Talbot 2577-A = Pl. 12, f. 3
2577-B = Pl. 12, f. 3a
8227-A = Pl. 13, f. 6
8227-B - Not figured
- Worthen, A.H., 1890, GSI v. 8, p. 89, pl. 12, f. 3, 3a; pl. 13, f. 6.
- = *Pachylocrinus nodobasalis* (Worthen) in Bassler and Moodey, 1943, p. 649.
- Poteriocrinus okawensis* Worthen ISGS (ISM) 2441
Chester Group; Miss. Holotype
Bluffs of Okaw River above Chester,
Randolph Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 24; Worthen, 1883, GSI v. 7, p. 296, pl. 29, f. 2.
- = *Pachylocrinus okawensis* (Worthen) in Bassler and Moodey, 1943, p. 649.
- = *Aphelecrinus okawensis* (Worthen) in Kirk, 1944, p. 198.
- Poteriocrinus otterensis* Worthen ISGS (ISM) 2466
Keokuk Group; Miss. Holotype
Otter Creek, Jersey Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 14; Worthen, 1883, GSI v. 7, p. 283, pl. 28, f. 4.
- Poteriocrinus peculiaris* Worthen ISGS (ISM) 2448
Chester Group; Miss. Holotype
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 25 (published as *P. clytis* by error); Worthen, 1883, GSI v. 7, p. 298, pl. 29, f. 10a-b. Fig. 10a and 10b are of the same specimen, in spite of the explanation of plates, which refers to them as different specimens. Name was changed in Ill. State Mus. catalog to *Scaphiocrinus peculiaris* (Worthen).

= *Aphelecrinus peculiaris* (Worthen) in Kirk, Edwin, 1944, Am. Jour. Sci., v. 242, p. 202.

= *Aphelecrinus peculiaris* (Worthen) in Webster, G.D., 1973, GSA Memoir 137, p. 56.

***Poteriocrinus popensis* Worthen** ISGS (ISM) 2454
Chester limestone; Miss. **Holotype**
Pope Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 23; Worthen, 1883, GSI v. 7, p. 296, pl. 29, f. 12. Name was changed in Ill. State Mus. catalog to *Scaphiocrinus popensis* (Worthen).

= *Pachylocrinus popensis* (Worthen) in Bassler and Moodey, 1943, p. 649.

= *Aphelecrinus* sp. cf. *A. popensis* (Worthen, 1882) in Burdick and Strimple, 1971, Univ. Kans., Paleo. Contrib., Paper 51, p. 38.

***Poteriocrinus propinquus* Worthen** ISGS (ISM) 2437
Chester Group; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 26; Worthen, 1883, GSI v. 7, p. 299, pl. 29, f. 9.

= *Pachylocrinus propinquus* (Worthen) in Bassler and Moodey, 1943, p. 649.

***Poteriocrinus richfieldensis* Worthen** ISGS (ISM) 2474
Kinderhook Group; Miss. **Holotype**
Richfield, Ohio

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 15; Worthen, 1883, GSI v. 7, p. 285, pl. 30, f. 5.

= *Cosmetocrinus richfieldensis* (Worthen) in Bassler and Moodey, 1943, p. 649.

= *Aphelecrinus richfieldensis* (Worthen) in Webster, 1973, p. 56. (Misspelled as *Ampelecrinus* in Laudon, Lowell R., and John L. Severson, 1953.)

***Poteriocrinus rowleyi* Worthen** ISGS (ISM) 2576
Chester limestone; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1890, GSI v. 8, p. 90, pl. 14, f. 9. (Catalog number published is erroneously given on p. 90 as 2575 for 2576.)

Name changed in Ill. State Mus. catalog to *Scaphiocrinus rowleyi* (Worthen).

***Poteriocrinus salteri* Worthen** ISGS (ISM) 2449
Chester Group; Miss. **Holotype**
Randolph Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 21; Worthen, 1883, GSI v. 7, p. 291, pl. 29, f. 18. Name changed in Ill. State Mus. catalog to *Scaphiocrinus salteri* (Worthen).

= *Dinotocrinus salteri* (Worthen) in Bassler and Moodey, 1943, p. 649.

***Poteriocrinus sculptus* Worthen** ISGS (ISM) 2445
Chester Group; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 21; Worthen, 1883, GSI v. 7, p. 292, pl. 29, f. 8.

= *Abrotocrinus sculptus* (Worthen) in Bassler and Moodey, 1943, p. 650.

***Poteriocrinus similis* Worthen** ISGS (ISM) 2446
Chester limestone; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 23; Worthen, 1883, GSI v. 7, p. 295, pl. 30, f. 12. Name changed in Ill. State Mus. catalog to *Scaphiocrinus similis* (Worthen).

= *Dasycrinus similis* (Worthen) in Burdick and Strimple, 1971, Univ. Kans. Paleo. Contrib., Paper 51, p. 36.

***Poteriocrinus spinobrachiatus* Worthen** ISGS (ISM) 2436
Chester Group; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 20; Worthen, 1883, GSI v. 7, p. 290, pl. 29, f. 1. Name changed in Ill. State Mus. catalog to *Scaphiocrinus spinobrachiatus* (Worthen).

= *Pachylocrinus spinobrachiatus* (Worthen) in Bassler and Moodey, 1943, p. 650.

***Poteriocrinus spinuliferous* Worthen** ISGS (ISM) 2492
Chester limestone; Miss. **Holotype**
Near Columbia, Monroe Co., Ill.

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 27; Worthen, 1890, GSI v. 8, p. 86, pl. 14, f. 3. Another specimen was figured on pl. 17, f. 1, 1a of vol. 8, but was not mentioned in the description. That specimen is missing as of 10/26/65. LSK.

= *Linocrinus spinuliferous* (Worthen) in Bassler and Moodey, 1943, p. 650.

***Poteriocrinus talboti* Worthen** ISGS (ISM) 2470
St. Louis Group; Miss. **Holotype**
Monroe Co., Ill.

Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 17; Worthen, 1883, GSI v. 7, p. 287, pl. 30, f. 7. Name changed in Ill. State Mus. catalog to *Scaphiocrinus talboti* (Worthen).

= *Scytalocrinus talboti* (Worthen) in Bassler and Moodey, 1943, p. 650.

- Poteriocrinus validus*** Worthen ISGS (ISM) 2463
Warsaw limestone; Miss. **Holotype**
Warsaw, Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 18;
Worthen, 1883, GSI v. 7, p. 287, pl. 28, f. 16.
- Poteriocrinus varsouvienensis*** Worthen ISGS (ISM) 2458
Warsaw beds; Miss. **Holotype**
Warsaw, Hancock Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist., Bull. 1, p. 19;
Worthen, 1883, GSI v. 7, p. 290, pl. 28, f. 15. Name changed
in Ill. State Mus. catalog to *Scaphiocrinus varsouvienensis*
(Worthen).
- = *Pachyocrinus varsouvienensis* (Worthen) in Bassler and
Moodey, 1943, p. 650.
- Poteriocrinus venustus*** Worthen ISGS (ISM) 2450
Chester Group; Miss. **Holotype**
Monroe Co., Ill.
- Worthen, A.H., 1882, Ill. State Mus. Nat. Hist. Bull. 1, p. 24; Wor-
then, 1883, GSI v. 7, pl. 297, pl. 29, f. 13a-b.
- = *Aphelocrinus venustus* (Worthen) in Kirk, Edwin, 1944, Am.
Jour. Sci., v. 242, p. 202.
- Prismopora trifolia*** (Rominger) ISGS (ISM) 2767-A/B
Keokuk Group; Miss. **2767-A = Figured specimen**
Keokuk, Iowa **2767-B - Not figured**
- Ulrich, E.O., 1890, GSI v. 8, p. 505, pl. 77, f. 4b.
- See also USNM 43782, "Plesiotype...pl. 77, f. 4b," *vide*
Schuchert's 1905 catalog.
- ISGS (ISM) 2767-A bears Ulrich's handwritten label, glued to
the specimen, reading "Figured on pl. 77, fig. 4b, vol. 8." It
appears to be the specimen figured, but a comparison with
the USNM specimen will be necessary to determine which
is really the specimen figured.
- = *Phractopora trifolia* (Rominger) in Nickles and Bassler,
1900, U.S.G.S. Bull. 173, p. 350.
- Prismopora trifolia*** (Rominger) ISGS (ISM) 2846-A/B
Keokuk Group; Miss. **Figured specimens**
Keokuk, Iowa **2846-A = Pl. 77, f. 4**
2846-B = Pl. 77, f. 4a
- Ulrich, E.O., 1890, GSI v. 8, p. 505, pl. 77, f. 4, 4a.
- See also USNM 43782, "Plesiotype...pl. 77, f. 4b," *vide*
Schuchert's 1905 catalog. Comparison of ISGS (ISM) 2767-A
and USNM specimens will be necessary to determine which
is really the specimen shown as fig. 4b.
- = *Phractopora trifolia* (Rominger) in Nickles and Bassler,
1900, U.S.G.S. Bull. 173, p. 350.
- Productus magnus*** Meek and Worthen ISGS (ISM) 4218
Keokuk Group; Miss. **Figured specimen**
Crawfordsville, Ind.
- Figured by Hall, James, and J.M. Clarke, 1892, Paleont. N.Y., v.
8, pt. 1, p. 327, pl. 17A, f. 15. *Not P. magnus* Meek and Wor-
then, 1861, Acad. Nat. Sci. Philadelphia Proc., p. 142; *nor*
1868, GSI v. 3, p. 528, pl. 20, f. 7a-c.
- Catalogued in old Ill. State Mus. catalog as *Productus*
semireticulatus Martin.
- = *Marginatia crawfordsvillensis* (Weller) in N. Gary Lane, 1973,
Univ. Calif. Pub. Geol. Sci., v. 99, p. 100.
- Productus semireticulatus*** Martin
See *Productus magnus* Meek and Worthen
- Prolecanites monroensis*** (Worthen)
See *Goniatites monroensis* Worthen
- Protaster? gregarius*** Meek and Worthen ISGS (ISM) 1823
Keokuk Group; Miss. **Syntypes**
Crawfordsville, Ind.
- Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 509, pl. 16, f.
5a-e.
- This is the slab marked by Meek and Worthen as "Type"; it has
many specimens on it, but I have not determined which are
the figured ones. LSK, 1961.
- Protocrisina exigua*** Ulrich ISGS (ISM) 2687-2
Cincinnati Group; Ord. **Syntype**
Wilmington, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 405, pl. 29, f. 4 (larger of 2
specimens shown under 4), and 4a?-4c?
- 2687-1 = *Phylloporina variolata* Ulrich. Ulrich's handwritten
label designating 2687-1 = *Phylloporina variolata* Ulrich
and 2687-2 = *Protocrisina exigua* Ulrich, "Type. Pl. 29, fig.
4," is glued to 2687-1, but Ulrich's figured specimen of *P. ex-
igua* is on 2687-2.
- See also USNM 43287-43288, "Figured sections of cotype...pl.
29, f. 4c; pl. 53, f. 11-11e," *vide* Schuchert's 1905 catalog.
- Proutella discoidea*** (Prout) ISGS (ISM) 4454-1/2
Keokuk Group; Miss. **4454-1 = Fig'd. specimen,**
Hancock, Co., Ill. **pl. 69, f. 4**
4454-2 - Not fig'd.
- Ulrich, E.O., 1890, GSI v. 8, p. 674, pl. 69, f. 4. Ulrich, p. 675,
notes "Several of the specimens used in drawing up the
above diagnosis of the species were so named by Dr. Prout
himself..." It is therefore possible that these specimens
were some of Prout's types, though there is apparently no
way of proving it.
- See also USNM 43788, "Cotype and figured sections...pl. 69, f.
4a-d," *vide* Schuchert's 1905 catalog.
- = *Cyclopora discoidea* Prout, 1860, Acad. Sci. St. Louis,
Trans., v. 1, p. 578; Prout, 1866, GSI v. 2, p. 420, pl. 21, f. 2-2a;
pl. 22, f. 10, 10a. The specimen figured on pl. 22 (and
possibly that on pl. 21 also) is U.I. X-15 (ISM 10714).

Pseudaviculopecten (?) *indianensis* (Meek and Worthen)
See *Aviculopecten colletti* Worthen

Pseudomonotis hawni var. *sinuata* ISGS (ISM) 2971-A/D
(Meek and Worthen) 2971-A = Fig'd. specimen,
Coal Measures p. 244, f. 11-H
Gallatin Co., Ill.

Newell, N.D., and D.W. Boyd, 1970, American Mus. Nat. Hist.
Bull., v. 143, art. 4, p. 244, f. 11-H.

= *Eumicrotus hawni* var. *sinuata* Meek and Worthen, 1866, GSI
v. 2, p. 338.

Newell and Boyd's figures 11-F and 11-G on p. 244 are of the
same specimen as figured by Meek and Worthen, 1866, pl.
27, f. 13. That specimen is U.I. X-722 (ISM 10914). It is called
"holotype" by Newell and Boyd, and ISGS (ISM) 2971-A is
called "paratype." Worthen catalogued 2 specimens under
his number 10914, in his handwritten catalog, and in his
own handwriting. Present whereabouts of the second
specimen and/or the other three specimens used for Meek
and Worthen's illustrations is unknown. The other three
specimens under ISGS (ISM) 2971 (2971-B/D) do not appear
to be those illustrated. LSK 4/25/78

Ptilopora acuta Ulrich ISGS (ISM) 4472-1
Keokuk Group; Miss. Syntype
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 622, pl. 65, f. 4, 4a.

Ptilopora sp. cf. *P. acuta* Ulrich ISGS (ISM) 4472-2
Keokuk Group; Miss. Figured specimen
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 622, pl. 65, f. 5c.

Ptilopora cylindracea Ulrich ISGS (ISM) 4481
Keokuk Group; Miss. Syntype
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 623, pl. 66, f. 2a.

See also USNM 43786, "Cotypes...pl. 66, f. 2, 2b," *fide*
Schuchert's 1905 catalog.

Ptilopora prouti Hall ISGS (ISM) 4463
Warsaw beds; Miss. Figured specimen
Monroe Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 625, pl. 65, f. 3 (specimen shown
as f. 3a, 3b, 3c is missing).

Ptilopora valida Ulrich ISGS (ISM) 4459-1/3
Keokuk Group; Miss. 3 Syntypes
Bentonsport, Iowa (4459-3); 4459-1 = Pl. 65, f. 5; pl. 66, f. 1
and Henderson Co., 4459-2 = Pl. 65, f. 5a; pl. 66, f. 1a, 1b
Ill. (4459-1/2) 4459-3 = Pl. 65, f. 5b

Ulrich, E.O., 1890, GSI v. 8, p. 623, pl. 65, f. 5, 5a-b; pl. 66, f. 1,
1a-b.

Ptilotrypa obliquata Ulrich ISGS (ISM) 2701-A/D
Cincinnati Group; Ord. Syntypes
Wilmington, Will Co., Ill. 2701-A = Pl. 30, f. 1, 1a

Ulrich, E.O., 1890, GSI v. 8, p. 531, pl. 30, f. 1, 1a.

Four thin sections from 2701-A and 5 from 2701-D prepared by
June Philips, 1959.

See also USNM 43787, "Cotypes and figured sections...pl. 30,
f. 1b, 1d, 1e," *fide* Schuchert's 1905 catalog.

Ptychocrinus splendens (S.A. Miller) ISGS (ISM) 1579
Cincinnati Group; Ord. Specimen used
Alexander Co., Ill. for statistics
(probably Orchard Creek exposure,
fide Brower, 1969)

Brower, James C., 1973, *Palaeontographica Americana*, v. 7
(46). Specimen used by Brower in his statistical studies and
labeled by him "Brower #48" but not specifically mentioned
by him in his report.

See also *Eopatelliocrinus latibrachiatius* Brower.

Ptylopora
See *Ptylopora*

Pyramiblastus fusiformis (Wachsmuth and Springer)
See *Orophocrinus fusiformis* Wachsmuth and Springer

Retepora hamiltonensis Prout ISGS (ISM) 11458
Hamilton; Devonian Holotype? or
New Buffalo, Iowa figured syntype?
Collected by A.H. Worthen

Prout, H.A., 1866, Acad. Sci. St. Louis, Trans., v. 2, p. 412.

= *Polypora hamiltonensis* (Prout) in Meek, F.B., and A.H. Worthen,
1866, GSI v. 2, p. 423, pl. 21, f. 6 (and f. 6a?).

= *Reteporina hamiltonensis* (Prout) in Nickles and Bassler,
1900, U.S.G.S. Bull. 173, p. 388.

Reteporina hamiltonensis (Prout)
See *Retepora hamiltonensis* Prout

Rhombopora attenuata Ulrich ISGS (ISM) 4442
Keokuk Group; Miss. 4 Syntypes?
Warsaw, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 655, pl. 70, f. 7? The old ISM label
says "Type," but it is impossible to tell whether any of
these is figured. A comparison with the USNM specimens
would be necessary.

See also USNM 43344, "Cotypes...pl. 70, f. 7," *fide* Schuchert's
1905 catalog.

Rhombopora decipiens Ulrich ISGS (ISM) 4440
St. Louis Group; Miss. 2 Syntypes
Monroe Co., Ill.

- Ulrich, E.O., 1890, GSI v. 8, p. 657, pl. 71, f. 3, 3a (specimen on right-hand side of illustration only).
- See also USNM 44104, "Cotype and figured sections...pl. 71, f. 3b-3d," *vide* Schuchert's 1905 catalog.
- Rhombopora dichotoma* Ulrich** IGS (ISM) 4458
Burlington Group; Miss. **Holotype**
Burlington, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 650, pl. 70, f. 13, 13a-b.
- Rhombopora exigua* Ulrich** IGS (ISM) 4450
Burlington Group; Miss. **Holotype**
Burlington, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 651, pl. 70, f. 10, 10a.
- Rhombopora gracilis* Ulrich** IGS (ISM) 4477
Burlington Group; Miss. **Holotype?**
Burlington, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 651, pl. 70, f. 11 (and 11a-b?). This specimen is definitely that figured as f. 11 and probably that figured as f. 11a-b, but a careful comparison with the USNM specimens will be necessary to make a final determination.
- See also USNM 44103, "Cotypes...pl. 70, f. 11a, 11b," *vide* Schuchert's 1905 catalog.
- Rhombopora simulatrix* Ulrich** IGS (ISM) 4441-A/C
St. Louis Group; Miss. **3 Syntypes**
Monroe Co., Ill. **4441-A = Pl. 71, f. 2c**
4441-B/C - Unfigured
- Ulrich, E.O., 1890, GSI v. 8, p. 657, pl. 71, f. 2c.
- See also USNM 44105, "Cotypes and figured sections...pl. 71, f. 2, 2b, 2d, 2e," *vide* Schuchert's 1905 catalog.
- Rhombopora subannulata* Ulrich** IGS (ISM) 4476
Hamilton Group; Dev. **Syntype**
New Buffalo, Iowa
- Ulrich, E.O., 1890, GSI v. 8, p. 648, pl. 45, f. 1b.
- See also USNM 44102, "Cotypes and figured sections...pl. 45, f. 1, 1a, 1c-i," *vide* Schuchert's 1905 catalog.
- Rhombopora tabulata* Ulrich** IGS (ISM) 2821-8
Chester Group; Miss. **Syntype**
Kaskaskia, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 658, pl. 70, f. 2. Slab has 10 species on it; this is #8.
- See also USNM 43793, "Cotype and figured sections...pl. 70, f. 2a-2c," *vide* Schuchert's 1905 catalog.
- McKinney, Frank K., 1972, Geol. Survey Alabama, Bull. 98, p. 61-62.
- Rhombopora transversalis* Ulrich** IGS (ISM) 4465-1/2
Keokuk Group; Miss. **4465-1 = Holotype? or**
Warsaw (4465-1) and **syntype?, pl. 71, f. 4, 4a, 4b?**
Nauvoo (4465-2), Ill. **4465-2 - Unfigured, possibly**
not conspecific?
- Ulrich, E.O., 1890, GSI v. 8, p. 654, pl. 71, f. 4, 4a, and 4b?
- Rhombopora varians* Ulrich** IGS (ISM) 4455-1/2
Keokuk Group; Miss. **Syntypes**
Warsaw (4455-1) and **4455-1 = Pl. 71, f. 1, 1a**
Plymouth (4455-2), Ill. **4455-2 = Pl. 71, f. 1b-d**
- Ulrich, E.O., 1890, GSI v. 8, p. 653, pl. 71, f. 1a-d.
- Rynchonella illinoiense* Worthen** IGS (ISM) 2537-A/B
Coal Measures **2 Syntypes**
(probably Lonsdale limestone) **2537-A = Pl. 11, f. 3, 3a-3c**
Peoria County, Ill. **2537-B - Unfigured**
Collected by Mr. Gifford
and W.H. Adams
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 24; Worthen, 1890, GSI v. 8, p. 104, pl. 11, f. 3, 3a-3c.
- Sanguinolites? burlingtonensis* Worthen** IGS (ISM) 2541
Burlington limestone; Miss. **Holotype**
Calhoun Co., Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 14; Worthen, 1890, GSI v. 8, p. 129, pl. 20, f. 8, 8a.
- Sanguinolites? multistriatus* Worthen** IGS (ISM) 2528
Keokuk shale; Miss. **Holotype**
Crawfordsville, Ind.
Collected by Frank H. Bradley
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 14; Worthen, 1890, GSI v. 8, p. 129, pl. 19, f. 2.
- Sanguinolites randolphensis* (Worthen)**
See *Cypricardia? randolphensis* Worthen
- Scalaripora approximata* Ulrich** IGS (ISM) 2709
Hamilton Group; Dev. **Holotype?**
Thunder Bay, Mich.
- Ulrich, E.O., 1890, GSI v. 8, p. 508, pl. 43, f. 3.
- Scalaripora separata* Ulrich** IGS (ISM) 2899
Hamilton Group; Dev. **Holotype?**
Thunder Bay, Mich.
- Ulrich, E.O., 1890, GSI v. 8, p. 507, pl. 43, f. 2.
- Scaphiocrinus calyculus* (Hall)**
See *Poteriocrinus calyculus* Hall

Scaphiocrinus concinnus (Meek and Worthen)
See *Poteriocrinites* (*Zeacrinus*?) *concinnus* Meek and Worthen

Scaphiocrinus depressus Meek and Worthen ISGS (ISM) 1811
Keokuk Group; Miss. Holotype?
Crawfordsville, Ind.

Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 27; Meek and Worthen, 1873, GSI v. 5, p. 492, pl. 14, f. 8 (f. 6 is U.I. X-1097 = ISM 10171).

= *Decadocrinus depressus* (Meek and Worthen), in Van Sant and Lane, 1964, Univ. Kans. Paleo. Contrib., art. 7, p. 91-92, pl. 4, f. 2.

Scaphiocrinus kaskaskiensis (Worthen)
See *Poteriocrinus kaskaskiensis* Worthen

Scaphiocrinus peculiaris (Worthen)
See *Poteriocrinus peculiaris* Worthen

Scaphiocrinus popensis (Worthen)
See *Poteriocrinus popensis* Worthen

Scaphiocrinus robustus Hall
See *Scytalocrinus robustus* (Hall)

Scaphiocrinus rowleyi (Worthen)
See *Poteriocrinus rowleyi* Worthen

Scaphiocrinus salteri (Worthen)
See *Poteriocrinus salteri* Worthen

Scaphiocrinus similis (Worthen)
See *Poteriocrinus similis* Worthen

Scaphiocrinus spinobrachiatus (Worthen)
See *Poteriocrinus spinobrachiatus* Worthen

Scaphiocrinus talboti (Worthen)
See *Poteriocrinus talboti* Worthen

Scaphiocrinus unicus Hall ISGS (ISM) 8195-A/B
Keokuk Group; Miss. 8195-A - Used by Van Sant
Crawfordsville, Ind. for measurements, p. 86

= *Abrotocrinus unicus* (Hall) in Van Sant and Lane, 1964, Univ. Kans. Paleo. Contrib., art. 7, p. 86. Catalog number is erroneously given as IGS 38195 in bottom line, p. 86.

Scaphiocrinus varsoviensis (Worthen)
See *Poteriocrinus varsoviensis* Worthen

Schizoblastus? granulosus (Meek and Worthen)
See *Pentremites* (*Granatocrinus*) *granulosus* Meek and Worthen

Schizodus? circulus Worthen ISGS (ISM) 2521-A/B
Oolitic beds of St. Louis Group; Miss. Syntypes
2 miles W. of Waterloo, 2521-A = Fig'd., pl. 19, f. 1
Monroe Co., Ill. 2521-B - Unfigured
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 11; Worthen, 1890, GSI v. 8, p. 109, pl. 19, f. 1.

Schizodus depressus Worthen ISGS (ISM) 2520-A/B
Oolitic beds of St. Louis Group; Miss. Syntypes
Monroe Co., Ill. 2520-A = Fig'd., pl. 18, f. 8, 8a
Collected by A.H. Worthen 2520-B - Not fig'd.

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 11; Worthen, 1890, GSI v. 8, p. 109, pl. 18, f. 8, 8a.

Schizodus magnus Worthen ISGS (ISM) 2498
From one of the upper divisions Holotype
of the Chester limestone;
Lower Carboniferous. About 2
miles below the mouth of Marys
River, Randolph Co., Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 9.

= *Leptodomus? magnus* (Worthen) 1890, GSI v. 8, p. 107, pl. 18, f. 2, 2a.

Schizodus nauvoensis Worthen ISGS (ISM) 2499
Keokuk limestone; Miss. Holotype
Nauvoo, Ill.
Collected by A.H. Worthen

Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 10; Worthen, 1890, GSI v. 8, p. 108, pl. 20, f. 3.

Schizodus randolphensis Worthen ISGS (ISM) 2590-1/2
Chester limestone; Miss. Syntypes
Chester, Ill. 2590-1 = Fig'd., pl. 20, f. 12
Collected by A.H. Worthen 2590-2 - Not fig'd.

Worthen, A.H., 1890, GSI v. 8, p. 110, pl. 20, f. 12.

Schizodus ulrichi Worthen ISGS (ISM) 2584-A/D
Upper Coal Measures Syntypes - Lectotype
(probably Mattoon Fm., 2584-A = Syntype, Worthen,
fide Newell) pl. 20, f. 9; pl. 21, f. 1a
Fairfield, Wayne Co., Ill. = Lectotype, Newell & Boyd,
Collected by A.H. Worthen F. 55 C-D
2584-B = Syntype, Worthen, pl. 21, f. 1
= Newell & Boyd, F. 55 E-F
2584-C = Syntype, Worthen, pl. 21, f. 1b
2584-D = Unfig'd. syntype
= Newell & Boyd, f. 55 A-B

- Worthen, A.H., 1890, GSI v. 8, p. 110, pl. 20, f. 9; pl. 21, f. 1, 1a, 1b.
- Newell, Norman D., and Donald W. Boyd, 1975, Am. Mus. Nat. Hist. Bull., vol. 154, art. 2, p. 119, f. 55A-F.
- Schizophoria resupinoides* (Cox)
See *Orthis resupinoides* Cox
- Schoenaster fimbriatus* Meek and Worthen
See *Palasterina (Schoenaster) fimbriata* Meek and Worthen
- Scytalocrinus robustus* (Hall) IGS (ISM) 1819-A/B
Keokuk Group; Miss. Specimens (2) used
Crawfordsville, Ind. for measurements
- See Van Sant, Jan F. and N. Gary Lane, 1964, Univ. Kans. Paleol. Contrib., Echinodermata, art. 7, p. 98. Both specimens used for measurements, although citation of the numbers is rather confusing: specimens are cited as ISM (IGS) 1819, IGS (ISM) 1819, ISM 1819, and IGS 1819. Name was changed in old Ill. State Mus. catalog from *Scaphiocrinus* to *Scytalocrinus*.
- Scytalocrinus talboti* (Worthen)
See *Poteriocrinus talboti* Worthen
- Septopora biserialis* var. *nervata* Ulrich IGS (ISM) 4464
Coal Measures Syntype
Bond or Montgomery Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 632, pl. 64, f. 6. Ulrich's label, glued to the specimen, gives both Montgomery and Bond Counties. A second label, also glued to the specimen, gives "*Synocladia biserialis* Hall, Montgomery Co., Ill., sec. 9-1, G. C. Broadhead, 27." Presumably the specimen was collected by Broadhead and the 27 may refer to bed No. 27 as described by Broadhead in GSI v. 6, p. 153.
- Septopora castriensis* Prout IGS (ISM) 4478-1, -3
Chester Group; Miss. 4478-1: Unfig'd.
Chester, Randolph Co., Ill. 4478-3 = Fig'd., pl. 64, f. 1b?
- Ulrich, E.O., 1890, GSI v. 8, p. 628, pl. 64, f. 1b? Ulrich's label, glued to the specimen, marks 4478-3 as fig. 1a. It is probably 1b (reverse or dorsal face of frond).
- See also USNM 44092, "Plesiotype...pl. 64, f. 1-1d," *fide* Schuchert's 1905 catalog. (Figs. on plate are only 1-1b)
- Septopora delicatula* Ulrich IGS (ISM) 2820-12
Seville; Lower Coal Measures Holotype
Seville, Fulton Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 634, pl. 64, f. 5, 5a.
On small slab with several other species.
- Septopora pinnata* Ulrich IGS (ISM) 4467
Upper Coal Measures
Jasper Co., Ill. Holotype
- Ulrich, E.O., 1890, GSI v. 8, p. 633, pl. 64, f. 7; pl. 65, f. 1a (and 1?).
- Solenocaris sancti-ludovici* Worthen IGS (ISM) 2497
St. Louis limestone; Miss. Holotype
South St. Louis, Mo.
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 3; Worthen, 1890, GSI v. 8, p. 153, pl. 28, f. 3.
= *Strigocaris sanctiludovici* (Worthen) in Rolfe, W.D. Ian, 1969, in Treatise on Invert. Paleol., pt. R, Arthropoda 4, p. R331. "*Strigocaris sanctiludovici* (Worthen) is possibly a phyllocarid carapace, but poorly preserved."
- Solenomya iowensis* Worthen IGS (ISM) 2517-A/D
Shaly layers of St. Louis ls.; Miss. Syntypes (4)
Pella, Iowa 2517-A = Fig'd., pl. 19,
Collected by A.H. Worthen f. 5, 5a
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 13; Worthen, 1890, GSI v. 8, p. 132, pl. 19, f. 5, 5a.
- Solenomya monroensis* Worthen IGS (ISM) 2515-A/C
Oolitic beds of the Syntypes
St. Louis limestone; Miss. 2515-A = Pl. 18, f. 5, 5a
Fountain Creek, Monroe Co., Ill. 2515-B/C - Unfig'd.
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 13; Worthen, 1890, GSI v. 8, p. 131, pl. 18, f. 5, 5a. Note in tray with these specimens, "In my opinion *Solenomya monroensis* (2515) and *Pleurophorus monroensis* (2523), both of Worthen (vol. 8) are identical, E.O. Ulrich det. 1892."
- Solenomya varsoviensis* Worthen IGS (ISM) 2539
Keokuk limestone; Miss. Holotype
Warsaw, Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 12; Worthen, 1890, GSI v. 8, p. 131, pl. 19, f. 8, 8a.
- Note in tray with specimen, "Type of Worthen's *Solenomya varsoviensis*. This I regard as a large specimen of *Chaenomya? hybrida* M. & W. E.O. Ulrich det. 1892."
- Sorospongia radiata* Ulrich and Everett IGS (ISM) 2652
Trenton Group Figured specimen
Lee County, Ill.
Collected by Dr. Oliver Everett
- Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, pl. 7, f. 2 (and 2a?, 2b?). Figured without name or description but catalogued in old Ill. State Mus. catalog under this name. One label appears to be in Ulrich's handwriting; another indicates that the identification was confirmed by Dr. C. Rominger in 1892.

- Sphenopoterium enorme*** ISGS (ISM) 4397-A/C
var. ***depressum*** Meek and Worthen
Kinderhook Group; Miss. **Syntypes (3)**
Salt Lick Point, **4397-A = Fig'd. syntype**
Monroe Co., Ill.
- Meek, F.B., and A.H. Worthen, 1866, GSI v. 2, p. 146, pl. 14, f. 2a-b.
- Spirifer engelmanni*** Meek and Worthen ISGS (ISM) 4530-1/4
Syntypes · Lectotype and paralectotypes
Lower Helderberg, Dev. **4530-1 = Meek & Worthen, pl. 8, f. 5a**
Union Co., Ill. **= Amsden, pl. 17, f. 19**
4530-2 = Meek & Worthen, pl. 8, f. 5b, c, d
= Amsden, Lectotype, pl. 17, f. 13-15, 17
4530-3 = Amsden, pl. 17, f. 16, 18, 20
4530-4 · Not figured
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 398, pl. 8, f. 5a-d.
- = *Spirifer worthenianus* Schuchert, Charles, 1890, N.Y. State Geologist, 9th Ann. Rept., p. 54.
- = *Hysterolites (Acrospirifer) worthenianus* (Schuchert) in Amsden, T.W., 1963, Okla. Geol. Survey Bull. 94, p. 183, pl. 17, f. 13-21. Designates lectotype.
- Spirifer engelmanni*** Meek and Worthen ISGS (ISM) 4970
Lower Helderberg; Dev. **6 specimens (one, unnumbered, 5 miles from Jonesboro, on the road to Bennett's Landing, Union Co., Ill. 4970-1 = Amsden, pl. 17, f. 21**
- Catalogued originally as *S. macropterus* Goldfuss.
- = *Hysterolites (Acrospirifer) worthenianus* (Schuchert) in Amsden, T.W., 1963, Okla. Geol. Survey Bull. 94, pl. 17, f. 21.
- Spirifer fastigatus*** Meek and Worthen ISGS (ISM) 4237-1/2
Keokuk shale; Miss. **Syntypes**
Crawfordsville, Ind. **4237-1 = F. 3a**
4237-2 = F. 3b
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 36.
- Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 521, pl. 30, f. 3a, 3b.
- Not *S. fastigatus* Morton, 1836.
- = *S. mortonianus* Miller, 1883, in Weller, 1914, ISGS Mon. 1, p. 366.
- Spirifer hemicyclus*** Meek and Worthen ISGS (ISM) 4522-1/3
Lower Helderberg, Dev. **Types?**
Union Co., Ill. **4522-1 = Pl. 10, f. 1a**
(cast from Alexander Co.?) **4522-2 = Pl. 10, f. 1c, 1d**
4522-3 · Unfig'd.
- = *Spirifer engelmanni*? Meek and Worthen, 1868 (identified by T.W. Amsden).
- = *Hysterolites (Acrospirifer) worthenianus* (Schuchert) in Amsden, T.W., 1963, Okla. Geol. Survey Bull. 94, p. 182.
- Two of these specimens bear diamond stickers, indicating they are types, but I have not been able to find where they were published, if at all. LSK 2/9/78.
- Spirifer hemicyclus*** Meek and Worthen ISGS (ISM) 5905-1/3
Oriskany Group (probably Clear Creek Fm.); Dev. **Syntypes · Lectotype**
Union Co., Ill. (5905-1) **= M. & W., pl. 8, f. 6, a, b, d**
Alexander Co., Ill. (5905-2/3) **= Amsden, lectotype, pl. 17, f. 8-9, 11-12**
Sec. 21, T. 147, R. 2 W. **5905-2 = M. & W., pl. 8, f. 7b**
= Amsden, p. 185, text f. 49B, pl. 17, f. 10
5905-3 · Not figured
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 399, pl. 8, f. 6a-b, d, 7b (specimens shown in f. 6c, 7a missing).
- = *Brachyspirifer? hemicyclus* (Meek and Worthen) in Amsden, T.W., 1963, Okla. Geol. Survey Bull. 94, p. 185, text f. 49B, pl. 17, f. 8-9, 11-12.
- Spirifer macropterus*** Goldfuss
See *Spirifer engelmanni* Meek and Worthen
- Spirifer mortonianus*** Miller
See *Spirifer fastigatus* Meek and Worthen
- Spirifer multigranosa*** Worthen ISGS (ISM) 2597-1/4
Coal Measures **Syntypes (4)**
Roll's Ford, Sangamon Co., Ill. **2597-1 = Fig'd. syntype**
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 105, pl. 11, f. 5, 5a.
- Spirifer paradoxus?*** Schlothiem ISGS (ISM) 4561
Label with specimen gives **Figured specimen**
"Oriskany Group; Devonian, Jackson Co., Ill."
Published text (p. 413) reads "from a light-gray, rough-fractured, silicious limestone two miles west of Jonesboro, Union Co., Ill.; believed to be of the age of the Corniferous or Onondaga division of the New York Devonian series."
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 415, pl. 10, f. 2.
- Spirifer perextensus*** Meek and Worthen ISGS (ISM) 4549-1/3
Onondaga limestone; Dev. **Syntypes**
2 miles west of Jonesboro, **4549-1 = Pl. 10, f. 1a**
Union Co., Ill. **4549-2 = Pl. 10, f. 1c, 1d**
4549-3 · Unfig'd.
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 414, pl. 10, f. 1a-d.
- See also ISGS (ISM) 6274, *S. perextensus*.

Spirifer perextensus Meek and Worthen
Onondaga limestone; Dev.
2 miles west of Jonesboro,
Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 414, pl. 10, f. 1b.

See also ISGS (ISM) 4549-1/3 for other syntypes.

***Spirifer worthenanus* Schuchert**
See *Spirifer engelmanni* Meek and Worthen

***Stegocoelia (Stegocoelia) wortheni* Knight**
See *Loxonema quadri-carinatus* Worthen

Stenopora americana Ulrich
Keokuk Group; Miss.
Near Warsaw. Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 437, pl. 74, f. 1?, 1a?

See also USNM 44066, "Figured sections and fragment of holotype...pl. 74, f. 1, 1a," *fide* Schuchert's 1905 catalog.

Ulrich's handwritten labels, glued to these specimens, read "Typical." The old Ill. Stat Mus. catalog calls them "type." It is possible but by no means certain that the USNM specimen and slides came from the ISGS specimens. The Schuchert catalog gives the locality as Nauvoo, Ill., which is not listed in Ulrich's original description.

Stenopora americana ISGS (ISM)2759
var. *varsoviensis* Ulrich "Type"
Keokuk Group; Miss.
Near Warsaw, Hancock Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 437, pl. 74, f. 3. A label in Ulrich's handwriting, glued to the specimen, reads "Type. Pl. 74, f. 3."

See also USNM 43322, "Figured sections of holotype...pl. 74, f. 3, 3a," *fide* Schuchert's 1905 catalog.

Stenopora angularis Ulrich ISGS (ISM) 2835
Keokuk Group; Miss. "Type" = Holotype?
LaG range. Mo.

Ulrich, E.O., 1890, GSI v. 8, p. 439, pl. 74, f. 6. This ISGS specimen bears the diamond sticker commonly used to indicate types and Ulrich's handwritten label designating specimen as "Type. Pl. 74, f. 6. vol. 8."

See also USNM 43323, "Figured sections and fragment of holotype...pl. 74, f. 6-6b." *fide* Schuchert's 1905 catalog.

Stenopora carbonaria ISGS (ISM) 2735
var. *conferta* Ulrich "Type" = Holotype?
Coal Measures
Caseyville, St. Clair Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 446. This specimen bears the diamond sticker commonly used to indicate types and may

well be the holotype from which the USNM sections (figured) were made.

See also USNM 43315, "Figured sections of holotype...pl. 73, f. 9, 9a," *fide* Schuchert's 1905 catalog.

Stenopora cestriensis Ulrich
Chester Group; Miss.
Chester, Randolph Co., Ill.

ISGS (ISM) 2839
"Type" = Holotype
1 slide prepared by
T.G. Perry. 1956

Ulrich, E.O., 1890, GSI v. 8, p. 442. Ulrich's handwritten label reads "Type. Pl. 74, fig. 7, Vol. 8."

See also USNM 43314, "Figured sections of holotype...pl. 74, f. 7. 7a." *vide* Schuchert's 1905 catalog.

= *Tabulipora cestriensis* (Ulrich) in Perry, T.G., and Alan S. Horowitz, 1963, Ind. Dept. Conserv. Geol. Survey Bull. 26, p. 30; in McKinney, Frank K., 1972, Geol. Survey Alabama Bull. 98, p. 41-44.

Stenopora intercalaris Ulrich
Keokuk Group; Miss.
Near Warsaw, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 439, pl. 74. ISGS (ISM) 2834-A bears the diamond sticker that was commonly used to indicate types in the Worthen collection.

See also USNM 43317, "Figured sections and fragments of holotype...pl. 74, f. 5, 5a," *fide* Schuchert's 1905 catalog.

Stenopora intermittens Ulrich
Warsaw beds; Miss.
Warsaw. III.

Ulrich, E.O., 1890, GSI v. 8, p. 440, text fig. 16? This ISGS specimen bears the diamond sticker commonly used to indicate types and Ulrich's handwritten label reading "Type. Cut No. 18."

See also USNM 43325, "Holotype and figured sections...p. 440, f. 16," *fide* Schuchert's 1905 catalog.

Stenopora meekana Ulrich
Chester Group; Miss.
Chester, Ill.

ISGS (ISM) 2760-A/B
Syntypes (2) and 3 slides
prepared by T.G. Perry, 1956
2760-A - 1 slide
2760-B - 2 slides

Ulrich, E.O., 1890, GSI v. 8, p. 443. These specimens were catalogued in the old Ill. State Mus. catalog as "Type" and bear the diamond stickers indicating types, but Ulrich's handwritten labels do not say type, as was usual. See Perry and Horowitz' discussion of types.

See also USNM 43320, "Figured sections of holotype...pl. 73, f. 7-7a," *fide* Schuchert's 1905 catalog.

= *Tabulipora ramosa* (Ulrich) In Perry and Horowitz, 1963, Ind. Dept. Conserv. Geol. Survey Bull. 26, p. 34. Perry and Horowitz give a detailed discussion of the types of *T. meekana* and *T. ramosa*.

- Stenopora montifera* Ulrich** ISGS (ISM) 2830
Keokuk Group; Miss. "Type" = **Holotype?**
Bentonsport, Iowa or **syntype?**
- Ulrich, E.O., 1890, GSI v. 8, p. 438, pl. 74. This specimen bears the diamond sticker indicating a type, and Ulrich's handwritten label, glued to the specimen, reads "Type. Pl. 74, fig. 4, vol. 8." This may be another piece of the specimen in the USNM or both may be syntypes.
- See also USNM 44065, "Figured sections and fragment of holotype...pl. 74, f. 4-4b," *vide* Schuchert's 1905 catalog.
- Stenopora? signata* Ulrich** ISGS (ISM) 2843
Coal Measures **Syntypes (2)**
Caseyville, St. Clair Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 446.
- See also USNM 43798, "Figured sections of holotype...pl. 73, f. 5, 5a, 5b," *vide* Schuchert's 1905 catalog.
- Stenopora tuberculata* (Prout)** ISGS (ISM) 2757-1/2
Warsaw beds; Miss. 2757-1 = Fig'd. specimen?
Warsaw, Ill. Two slides from 2757-1 made
by Frank McKinney, 1967
- Ulrich, E.O., 1890, GSI v. 8, p. 441, f. 17? The specimen, 2757-1, bears the diamond sticker, and Ulrich's handwritten label reads "fig. cut," so it is probably the specimen from which the slides for text fig. 17 were made.
- See also USNM 43796 and 43797, "Figured sections of plesiotypes...p. 441, text fig. 17, figs. 17a, 17b," *vide* Schuchert's 1905 catalog.
- = *Tabulipora* ? *tuberculata* (Prout, 1859) in McKinney, Frank K., 1972, Geol. Survey Alabama, Bull. 98, p. 39-41.
- Stictoporella basalis* Ulrich** ISGS (ISM) 2777
Warsaw beds; Miss. **Syntypes (2)**
Warsaw, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 532, pl. 75, f. 1. These two specimens were originally labeled by Ulrich and catalogued in the old Ill. State Mus. catalog as *Intrapora basalis*. Ulrich's handwritten labels, glued to each specimen, read "Type. Pl. 75, fig. 5, vol. 8." It is impossible to determine exactly which part of which specimen Ulrich used for his illustrations. See also ISGS (ISM) 4449, pl. 69, f. 2.
- = *Intrapora basalis* Ulrich in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 295.
- See also USNM 43770, "Cotypes and figured sections...pl. 68, figs. 5, 5a; pl. 59 (by error for 69), figs. 2, 2a," *vide* Schuchert's 1905 catalog.
- Stictoporella basalis* Ulrich** ISGS (ISM) 4449
Keokuk Group; Miss. **Syntype**
Warsaw, Hancock Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 532, pl. 69, f. 2. See also ISGS (ISM) 2777, pl. 75, f. 5.
- = *Intrapora basalis* Ulrich in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 295.
- See also USNM 43770, "Cotypes and figured sections...pl. 68, figs. 5, 5a; pl. 59 (by error for 69), figs. 2, 2a," *vide* Schuchert's 1905 catalog.
- Straparollus (Euomphalus) pernodosus* Meek and Worthen** ISGS (ISM) 2867
Lower Coal Measures **Holotype**
Near Alton, Ill.
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia, Proc., p. 45; Meek and Worthen, 1873, GSI v. 5, p. 604, pl. 29, f. 14a-c.
- Straparollus (Euomphalus) planodorsatus* (Meek and Worthen)**
See *Euomphalus planodorsatus* Meek and Worthen
- Straparollus (Euomphalus) subquadratus* Meek and Worthen** ISGS (ISM) 2868-A/C
Coal Measures **Syntypes (3)**
Montgomery Co., Ill. 2868-A = F. 12a-c
Collected by Mr. G.C. Broadhead 2868-B = F. 13a-c
2868-C = Not fig'd.
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia, Proc., p. 46; Meek and Worthen, 1873, GSI v. 5, p. 605, pl. 29, f. 12-13.
- = *Straparollus (Amphiscapha) subquadrata* Meek and Worthen in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 216.
- Straparollus subumbilicatus* Worthen** ISGS (ISM) 2602-1/2
Calcareous shales of the **Syntypes (2)**
Chester Group; Miss. 2602-1 = F. 3, 3a
Near Evansville, Randolph Co., Ill. 2602-2 = F. 3b
- Worthen, A.H., 1890, GSI v. 8, p. 142, pl. 24, f. 3, 3a, 3b.
- = *Straparollus (Straparollus) subumbilicatus* Worthen in Yochelson and Saunders, 1967, U.S.G.S. Bull. 1210, p. 227.
- Streblotrypa distincta* Ulrich** ISGS (ISM) 4485
Chester Group; Miss. **Syntypes**
Chester, Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 669, pl. 71, f. 10 (and 10a-b?).
- Streblotrypa major* Ulrich** ISGS (ISM) 4452
Keokuk Group; Miss. **Syntype**
Nauvoo, Ill.
- Ulrich, E.O., 1888, Denison Univ. Bull., v. 4, p. 84, pl. 14, f. 10; Ulrich, 1890, GSI v. 8, p. 666, pl. 71, f. 8d. Ulrich's 1888 description was taken from his manuscript for his 1890 description in GSI, v. 8. This specimen bears Ulrich's handwritten label which reads "Type. Pl. 71, fig. 8."
- See also USNM 44095, "Cotypes and figured sections...pl. 71, f. 8, 8a; pl. 72, f. 1, 1a," *vide* Schuchert's 1905 catalog.
- Streblotrypa nicklesi* Ulrich** ISGS (ISM) 2821-10
Chester Group; Miss. **Syntype**
Kaskaskia, Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 667, pl. 71, f. 9. I believe the specimen on this slab marked 2821-10 is the one figured as the uppermost on the page of three specimens shown as fig. 9. Part of the specimen below the junction of the two branches has been removed. The specimen should be compared with the USNM specimens. LSK 9/23/71.

McKinney, Frank K., 1972, Geol. Survey Alabama, Bull. 98, p. 64-66.

See also USNM 43311, "Cotypes and figured sections....pl. 71, f. 9, 9c," *vide* Schuchert's 1905 catalog.

***Streblotrypa radialis* Ulrich** ISGS (ISM) 4456
Keokuk Group; Miss. **Syntype and 6 slides**
Bentonsport, Iowa

Ulrich, E.O., 1890, GSI v. 8, p. 667, pl. 72, f. 2. Six slides (peels) prepared by Sam Huffman, Indiana Univ., 1969.

***Streblotrypa subspinosus* Ulrich** ISGS (ISM) 4457
Chester Group; Miss. **Syntypes**
Chester, Randolph Co., Ill.

Ulrich, E.O., 1890, GSI v. 8, p. 668, pl. 71, f. 7 (and 7a?). One small slab bearing several specimens. LSK 9/23/71.

***Streptorhynchus propinquus* Meek and Worthen**
See *Hemipronites subplanus* Conrad?

***Streptosolen obconicus* Ulrich** ISGS (ISM) 2660
and Everett **Figured syntype**
25 ft. above the base of
the Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 274, pl. 4, f. 4, 4a, 4b.

***Stricklandinia* sp. undet.** ISGS (ISM) 13504-A/B
Onondaga Group (probably Dutch **13504-A = Fig. spec.**
Creek ss.); Dev. **13504-B = Unfig'd.**
Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 402, pl. 9, f. 5.

***Stricklandinia elongata* var.** ISGS (ISM) 4548-A/C
***curta* Meek and Worthen** **Syntypes - Lectotype**
Oriskany Group (cherty) **4548-A = M & W, f. 1a**
(= Clear Creek Fm., *vide* **= Amsden, pl. 17, f. 1, 3**
Amsden); Dev. **4548-B = M & W, f. 1b-1c**
Union Co., Ill. **= Amsden, Lectotype, pl. 17, f. 5-7**
4548-C = Unfig'd.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 402, pl. 8, f. 1a-c.
= *Amphigenia curta* (Meek and Worthen) in Amsden, T.W.,
1963, Okla. Geol. Survey Bull. 94, p. 190, pl. 17, f. 1-7.

***Strigocaris sanctiludovici* (Worthen)**
See *Solenocaris sanctiludovici* Worthen

***Strophomena?* sp. undet.** ISGS (ISM) 4605
Oriskany Group (probably Dutch **Figured specimen**
Creek ss.); Dev.
4 miles west of Jonesboro, Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, pl. 8, f. 8.

***Strophomena (Strophodonta)* sp. undet.** ISGS (ISM) 4607-1/2
Oriskany Group (probably Dutch **Figured specimens**
Creek ss.); Dev. **4607-1 = Pl. 9, f. 7b**
4 miles west of Jonesboro, **4607-2 = Pl. 9, f. 9?**
Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 411, pl. 9, f. 7b, 9? (Specimen shown in f. 7a missing).

***Strophomena (Strophodonta)* sp.** ISGS (ISM) 4553-1/6
Yellowish friable sandstone, referred **4553-1 = Pl. 9, f. 6a**
to the horizon of the **4553-2 = Pl. 9, f. 6b**
Onondaga period of the New York **4553-3/6 = Unfigured**
series (= Dutch Creek sandstone)
Four miles west of Jonesboro,
Union Co., Ill.

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 412, pl. 9
(printed as pl. 6 by error on p. 412), f. 6a-6b. Listed in old Illinois State Museum catalog as *Strophodonta* sp? *perplana* Conrad and on old ISM labels as *Strophodonta perplana* Conrad. The specimen 4553-6 is probably different from the others in this collection.

***Strophostylus cancellatus* Meek** ISGS (ISM) 4539-A/B
and Worthen **Syntypes**
Oriskany Group; Dev. **4539-A = Pl. 8, f. 11a-b**
Bald Rock, Jackson Co., Ill. **4539-B = Unfig'd.**

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 404, pl. 8, f. 11a-b. A note in the tray reads "I regard this as the normal form of *Strophostylus cancellatus* M. & W. The types of that species I hold to be compressed vertically. E.O. Ulrich det. 1892."

***Strophostylus cancellatus* Meek** ISGS (ISM) 4551-A/B
and Worthen **Syntypes**
Oriskany Group; Dev. **4551-A = Text fig., p. 404**
Bald Rock, Jackson Co., Ill. **4551-B = Pl. 8, f. 12**

Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 404, pl. 8, f. 12.

***Strotocrinus venustus* Miller** ISGS (ISM) 2087
and Gurley **Holotype**
Burlington Group; Miss.
Burlington, Iowa

Miller, S.A., and W.F.E. Gurley, 1894, Ill. State Mus. Nat. Hist. Bull. 3, p. 26, pl. 6, f. 1.

***Strotospongia maculosa* Ulrich** ISGS (ISM) 2641
and Everett **Unfigured syntype?**

25 feet above the base of
the Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 277. Although this specimen bears Ulrich's label "Type" and "det. 1888," it is not the specimen figured by Ulrich and Everett on pl. 8, f. 1a-d. It may be an unfigured syntype—see reference in text to "2 other examples" on p. 278.

See also USNM 46573, "Figured sections of holotype...pl. 8, f. 1c-d," *vide* Schuchert's 1905 catalog.

- Synbathocrinus robustus*** Shumard ISGS (ISM) 1830
Keokuk Group; Miss. **Figured specimen**
Green Co., Ill.
Worthen, A.H., and F.B. Meek, 1875, GSI v. 6, p. 514, pl. 29, f. 4.
- Synphoroides?***
See *Dalmanites tridentiferus* (Shumard)
- Syringelasma wortheni*** Ulrich ISGS (ISM) 2666
Hamilton Group; Devonian **Holotype (in 2 pieces)**
Thunder Bay, Mich.
Ulrich, E.O., 1890, GSI v. 8, p. 250, pl. 7, f. 4, 4a, 4c-e. Name was given as *Syringophyllum* in text, but changed to *Syringelasma* in explanation of plates, because the former was preoccupied. See note on explanation of plate.
See also USNM 46574, "Figured sections of holotypepl. 7, f. 4b," *vide* Schuchert's 1905 catalog.
- Syringophyllum wortheni*** Ulrich
See *Syringelasma wortheni* Ulrich
- Tabulipora cestriensis*** (Ulrich)
See *Stenopora cestriensis* Ulrich
- Tabulipora meekana*** (Ulrich)
See *Stenopora meekana* Ulrich
- Tabulipora ramosa*** (Ulrich)
See *Stenopora meekana* Ulrich
- Taeniodictya cingulata*** Ulrich ISGS (ISM) 2761
Keokuk Group; Miss. **Holotype**
Near Warsaw, Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 530, pl. 67, f. 3, 3a? 3b?
- Taeniodictya frondosa*** Ulrich ISGS (ISM) 2854
Keokuk Group; Miss. **Syntype**
Nauvoo, Hancock Co., Ill.
Ulrich, E.O., 1890, GSI v. 8, p. 529, pl. 67, f. 5.
See also USNM 43799, "Cotypes and figured sections....pl. 69, f. 5-5c," *vide* Schuchert's 1905 catalog.
- Taeniodictya ramulosa*** Ulrich ISGS (ISM) 2800-1/2
Keokuk Group; Miss. **Syntypes (2)**
Near Warsaw, Hancock Co., Ill. **2800-1 = Pl. 67, f. 1**
2800-2 = Unfig'd.
- Ulrich, E.O., 1890, GSI v. 8, p. 528, pl. 67, f. 1.
See also USNM 43800, "Cotypes and figured sections....pl. 67, f. 1a-1i," *vide* Schuchert's 1905 catalog.
- Taeniodictya ramulosa* var. *burlingtonensis*** Ulrich ISGS (ISM) 2799-1/2
Burlington Group; Miss. **Syntypes (2)**
Burlington, Iowa (2799-1) and **2799-1 = Pl. 67, f. 2, 2a**
Montezuma, Ill. (2799-2) **2799-2 = Pl. 67, f. 2b**
- Ulrich, E.O., 1890, GSI v. 8, p. 529, pl. 67, f. 2, 2a-b.
- Talarocrinus ovatus*** Worthen ISGS (ISM) 2453
Chester Group (Paint Creek Fm?), **Holotype**
vide Weller, 1920, p. 341; Miss.
Monroe Co., Ill.
Worthen, A.H., 1882, Illinois State Mus. Nat. Hist. Bull. 1, p. 36;
Worthen, 1883, GSI v. 7, p. 314, pl. 29, f. 11a-b.
Wachsmuth, Charles, and Frank Springer, 1897, N. Amer. Crin. Cam., p. 787, pl. 78, f. 2a-b (drawings inaccurate).
Weller, Stuart, 1920, Ill. State Geol. Survey Bull. 41, p. 340, pl. 6, f. 27-30.
- Taxocrinus gracilis*** Meek and Worthen ISGS (ISM) 1611
Devonian **Holotype**
New Buffalo, Iowa
Meek, F.B., and A.H. Worthen, 1865, Acad. Nat. Sci. Philadelphia Proc., p. 142; Meek and Worthen, 1868, GSI v. 3, p. 421, pl. 13, f. 3. Worthen's handwritten catalog lists ISN 10397 (= U.I. X-46) as type for this species, giving same pl. and fig. The U.I. specimen was not included in Hansman and Scott's catalog, 1967, and I have not seen it. This ISGS specimen is definitely the one figured by Meek and Worthen, 1868, LSK, 6/19/78.
= *Eutaxocrinus gracilis* (Meek and Worthen) in Springer, Frank, 1920, Crin. Flexibilia, p. 367, pl. 49, f. 8a-b.
- Temnocheilus scottense*** Worthen ISGS (ISM) 2587
Warsaw; Miss. **Holotype (2 pieces)**
Near Winchester, Scott Co., Ill.
Worthen, A.H., 1890, GSI v. 8, p. 151, pl. 27, f. 3, 3a.
= *Koninckioceras scottense* (Worthen) in Miller and Kemp, 1947, Jour. Paleol., v. 21 (4), p. 352.
- Terebratula boidens*** Morton ISGS (ISM) 5484-A/F
Coal Measures **5484-A = Fig'd. specimen**
LaSalle, Ill. **pl. 25, f. 15a-b**
5484-B/F = Unfigured
- Meek, F.B., and A.H. Worthen, 1873, GSI v. 5, p. 572, pl. 25, f. 15a, b.
= *Dielasma boidens* (Morton) in Hall and Clarke, 1894, Paleozoic Brachiopoda, Paleont. N. Y., v. 8, pt. 2, p. 295.
= *Beecheria boidens* (Morton) in Stehli, F.G., 1956, Jour. Paleol., v. 30 (2), p. 302.
- Terebratula rowleyi*** Worthen ISGS (ISM) 2526-A/B
From a cherty bed near the base of **Syntypes (2)**
the Burlington ls.; Miss. **2526-A = Fig'd. syntype,**
Pike Co., Mo. **pl. 11, f. 6, 6a, 6b**
Collected by R.R. Rowley
Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 23; Worthen, 1890, GSI v. 8, p. 102, pl. 11, f. 6, 6a, 6b.
= *Dielasma rowleyi* (Worthen) in Hall and Clarke, 1894, Paleozoic Brachiopoda, Paleont. N. Y., v. 8, pt. 2, p. 296.
= *Centronelloidea rowleyi* (Worthen) in Weller, Stuart, 1914, I.S.G.S. Mon. 1, p. 247, and in Stehli, F.G., 1965, in the Treatise on Invert. Paleol., pt. H, Brachiopoda, p. H758.
- Tetratoechus crassimuralis*** (Ulrich)
See *Monotrypella crassimuralis* Ulrich

- Thamniscus fuscillatus*** Ulrich IGS (ISM) 8747-1
Chester Group; Miss.
Chester, Ill. **Syntype**
- Ulrich, E.O., 1890, GSI v. 8, p. 609, pl. 62, f. 9. The specimen is labeled "Type, pl. 62, f. 9," in Ulrich's handwriting. If this is the specimen figured, part of it has been removed from the slab.
- See also USNM 43364, "Cotype...pl. 62, f. 9, 9b," *fide* Schuchert's 1905 catalog.
- Thamniscus octonarius*** Ulrich IGS (ISM) 4462-1
Coal Measures **"Type" (= holotype?)**
Lawrence, Greenwood Co., Kan.
- Ulrich, E.O., 1890, GSI v. 8, p. 611, pl. 62, f. 7, 7a-b. Ulrich's handwritten label, glued to the specimen, reads "Type. Pl. 62, fig. 7, 7a, 7b." M.K. Elias also found this form 2 to 7 feet below the base of the Neva limestone, in a highway cut approximately 2 miles west of Grenola, Greenwood Co., Kan. Elias thinks this specimen probably came from the Morrill ls. (?), Big Blue series. Personal communication, 1960.
- Thamniscus sevillensis*** Ulrich IGS (ISM) 4466-1
Coal No. 1; Coal Measures **"Type" (= holotype?)**
Seville, Fulton Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 552, pl. 62 (not pl. 52 as given on p. 552), f. 5, 5a. Ulrich's handwritten label, glued to the specimen, reads "Type. *Thamniscus ramulosus* var. *sevivillensis* Ulrich. Pl. 62, fig. 5, 5a." The *ramulosus* was dropped and the var. *sevivillensis* raised to specific rank before publication.
- See also USNM 43801, "Cotypes and figured sections...pl. 55, f. 6," *fide* Schuchert's 1905 catalog. Catalogued by Schuchert as *Thamniscus ramulosus* var. *sevivillensis* Ulrich.
- Tholocrinus armiger*** (Meek and Worthen)
See *Zeacrinus? armiger* Meek and Worthen
- Trachydroma nodulosa*** Worthen IGS (ISM) 2538-A/C
Coal Measures (probably **2538-A = Fig'd. syntype,**
Lonsdale ls.) **pl. 23, f. 11, 11a**
Peoria Co., Ill. **2538-B/C - Unfig'd. syntypes**
Collected by W.H. Adams
and Mr. Gifford
- Worthen, A.H., 1884, Ill. State Mus. Nat. Hist. Bull. 2, p. 8; Worthen, 1890, GSI v. 8, p. 146, pl. 23, f. 11, 11a.
- Trachypora austini*** Worthen IGS (ISM) 2596-1/2
Coal Measures **Syntypes (2)**
Labette Co., Kan. **2596-1 = Pl. 11, f. 1, 1b**
Collected by A.C. Austin **2596-2 = Pl. 11, f. 1a**
- Worthen, A.H., 1890, GSI v. 8, p. 81, pl. 11, f. 1, 1a-1d. It is impossible to tell from which specimen sections shown in figs. 1c and 1d were made. The slides are missing. A rubber mold made by Harrell L. Strimble is with the specimens.
- Tremataster difficilis*** Worthen and Miller IGS (ISM) 2479
Chester, Miss. **Holotype**
Prairie du Long Creek, Monroe Co., Ill.
- Worthen, A.H., and S.A. Miller, 1883, GSI v. 7, p. 330, pl. 31, f. 3a, 3b.
- Spencer, W.K., and C.W. Wright, 1966, in Treatise on Invert. Paleol., pt. U, Echinodermata, p. U89, f. 78, 1a-b.
- Trematopora calloporoides*** Ulrich IGS (ISM) 2693
Cincinnati Group; Ord. **Syntype**
Alexander Co., Ill.
- Ulrich, E.O., 1890, GSI v. 8, p. 420, pl. 38, f. 1, 1a. Part of specimen has been broken away and is missing. LSK 12/22/69.
- See also USNM 43803, "Cotype and figured sections...pl. 38, f. 1b-d," *fide* Schuchert's 1905 catalog.
- See also Boardman, R.S., and F.K. McKinney, 1976, Jour. Paleol., v. 50 (1), p. 37, pl. 4, f. 4a, b (USNM 43803).
- Trematopora debilis*** Ulrich IGS (ISM) 2695-A/B
Cincinnati Group; Ord. **Syntypes**
Alexander Co., Ill. **2695-A = Pl. 34, f. 3**
2695-B = Pl. 34, f. 3a
- Ulrich, E.O., 1890, GSI v. 8, p. 419, pl. 34, f. 3, 3a.
- See also USNM 43802, "Figured sections and fragment of holotype...pl. 34, f. 3c, 3d," *fide* Schuchert's 1905 catalog.
- Trematopora? nitida*** Ulrich IGS (ISM) 2685
Cincinnati Group; Ord. **Syntypes-2 slabs bearing**
Kane Co., Ill? **many specimens**
- Ulrich, E.O., 1890, GSI v. 8, p. 419, pl. 34, f. 2, 2a-c. V. 8, p. 420, gives the locality as "Cincinnati group at Savannah, Ill., where it is very abundant at an horizon about 150 ft. above the river." Ulrich's label, glued to one of the specimens, says "Kane Co., 4 miles N. of Fayetteville, Ill."
- = *Lioclemella nitida* (Ulrich) in Nickles and Bassler, 1900, U.S.G.S. Bull. 173, p. 307.
- See also USNM 43778, "Cotypes and figured sections...pl. 34, f. 2d-f," *fide* Schuchert's 1905 catalog.
- Trematospira? imbricata*** Hall IGS (ISM) 2169-A/B
Upper Silurian **2169-A = Fig'd specimen,**
Bailey's Landing, Perry Co., Mo. **pl. 7, f. 2a-e**
2169-B - Spec. referred to
in text, p. 372
- Meek, F.B., and A.H. Worthen, 1888, GSI v. 3, p. 381, pl. 7, f. 2a-e.
- Trepostira (Trepostira) illinoensis*** (Worthen)
See *Pleurotomaria illinoensis* Worthen
- Triplophyllites centralis*** (Milne-Edwards and Halme)
See *Zaphrentis centralis* Edwards and Halme
- Triplophyllites ellipticus*** (White)
See *Zaphrentis carinata* Worthen
- Triplophyllites exiguus*** (Miller)
See *Zaphrentis cliffordana* Edwards and Halme
- Triplophyllites (Homalophyllites) cinctatus*** (Greene)
See *Zaphrentis lanceolatus* Worthen

- Triplophyllites (Homalophyllites) compressus* var. lanceolatus** (Worthen)
See *Zaphrentis lanceolatus* Worthen
- Triplophyllites (Homalophyllites) reversus*** (Worthen)
See *Zaphrentis reversa* Worthen
- Trochoceras costatum*** Hall
See *Lechritrochoceras notum* (Hall)
- Trochoceras notum*** Hall
See *Lechritrochoceras notum* (Hall)
- Uperocrinus aequibrachiatus* var. asteriscus** (Meek and Worthen)
See *Actinocrinus asteriscus* Meek and Worthen
- Whitfieldella billingsana*** (Meek and Worthen)
See *Centronella billingsiana* Meek and Worthen
- Worthenoceras? racinense***
Forster, A.F., 1934, Denison Univ. Bull., v. 34 (17), (Jour. Sci. Lab., v. 29 (2)), p. 127, pl. 35, f. 2; pl. 38, f. 2a-b. (Originally catalogued in the old Ill. State Mus. catalog as *Cyrtoceras*.)
ISGS (ISM) 8382-D-1 = **Holotype**
8382-D-2 = **Unfig'd. paratype**
Racine dolomite;
Niagara Group; Sil.
Racine, Wis.
- Worthenopora spinosa*** Ulrich
Warsaw beds; Miss.
Warsaw, Hancock Co., Ill. (4475-1B)
Keokuk ls., Miss.
Bentonsport, Iowa (4475-1A)
ISGS (ISM) 4475-1-A/B
Synatypes
4475-1A = **F. 1**
4475-1B = **F. 1a-c**
- Ulrich, E.O., 1890, GSI v. 8, p. 669, pl. 68, f. 1, 1a-c.
See also USNM 43804, "Figured sections of cotypes...pl. 68, f. 1d-f," *vide* Schuchert's 1905 catalog.
- Yoldia knoxensis*** McChesney
Coal Measures
Knox Co., Ill.
ISGS (ISM) 3019
5 specimens
- = *Palaeoneilo oweni* (McChesney). See discussion of these specimens by Murphy, J.L., 1966, Jour. Paleo., v. 40 (4), p. 869. The initials on the label that Murphy read as A.S.I., for the collector, were G.S.I., for Geological Survey of Illinois. The specimens were part of the first Geological Survey of Illinois collections, and it is not known who actually collected them. The oldest label is in A.H. Worthen's handwriting.
- Yoldia* n. sp.** Meek
Coal Measures (Bond Fm.,
fide Murphy)
Lawrenceville, Ill.
ISGS (ISM) 3020-1
Fig. spec. - Murphy,
pl. 101, f. 10
- = *Palaeoneilo oweni* (McChesney) in Murphy, J.L., 1966, Jour. Paleo., v. 40 (4), p. 870, pl. 101, f. 10. Murphy's reference (p. 870) to three specimens catalogued under ISGS (ISM) 3020 was in error. There are only two specimens under that number.
- Yoldia* n. sp.** Meek
Coal Measures (Bond Fm.,
fide Murphy)
Lawrenceville, Ill.
ISGS (ISM) 3020-2
Fig. spec. - Murphy,
pl. 101, f. 9
- = *Nuculopsis* cf. *N. croneisi* Schenck in Murphy, J.L., 1966, Jour. Paleo., v. 40 (4), p. 870, pl. 101, f. 9. Murphy's reference (p. 870) to three specimens catalogued under ISGS (ISM) 3020 was in error. There are only two specimens under that number.
- Yvania adamsi*** (Worthen)
See *Pleurotomaria adamsi* Worthen
- Yvania giffordi*** (Worthen)
See *Pleurotomaria giffordi* Worthen
- Zaphrentis* sp.**
Oriskany Group; Dev. "Yellowish
friable sandstone referred to
the horizon of the Onondaga period
of the New York Series." (Probably
= Dutch Creek ss.)
Four miles west of Jonesboro, Union Co., Ill.
ISGS (ISM) 4606-A/C
4606-A = Fig'd. specimen,
pl. 9, f. 3a-b
4606-B/C = **Unfig'd.**
- Meek, F.B., and A.H. Worthen, 1868, GSI v. 3, p. 410, pl. 9, f. 3a-b.
- Zaphrentis calcariformis*** Hall
Warsaw beds; Miss.
Coalsburg, Ky.
Collected by E.O. Ulrich
ISGS (ISM) 2558-A/B
2558-A = Fig'd. specimen,
pl. 10, f. 2, 2a
2558-B = **Unfig'd.**
- Worthen, A.H., 1890, GSI v. 8, p. 74, pl. 10, f. 2, 2a.
- Zaphrentis carinata*** Worthen
Keokuk limestone; Miss.
Bentonsport, Iowa
Collected by A.H. Worthen
ISGS (ISM) 2564
Holotype
- Worthen, A.H., 1890, GSI v. 8, p. 75, pl. 10, f. 3, 3a.
= *Triplophyllites (Triplophyllites) ellipticus* (White). Identification made by W.H. Easton, 1949, Easton, W.H., 1951, Jour. Paleo., v. 25 (3), p. 393, pl. 61, f. 5a-c.
- Zaphrentis centralis***
Edwards and Haime
Keokuk Group; Miss.
Warsaw and near Plymouth, Ill.
Collected by A.H. Worthen
ISGS (ISM) 2563-A/B
Figured specimens
2563-A = Pl. 9, f. 1, 1a
2563-B = Pl. 10, f. 13, 13a
- Worthen, A.H., 1890, GSI v. 8, p. 72, pl. 9, f. 1, 1a; pl. 10, f. 13, 13a. The specimen figured on pl. 9, f. 2 is at the Illinois State Museum in Springfield, Ill., No. 2569.
- = *Triplophyllites centralis* (Milne-Edwards and Haime) in Easton, W.H., 1944, I.S.G.S. Rept. Inv. 97, p. 39 (not ISGS (ISM) 2570 as given p. 39).
- Zaphrentis chesterensis*** Worthen
Chester Group; Miss.
Chester, Randolph Co., Ill.
Collected by A.H. Worthen
ISGS (ISM) 2560-A/B
Synatypes (2)
2560-A = Pl. 9, f. 3, 3a
2560-B = **Unfig'd.**
- Worthen, A.H., 1890, GSI v. 8, p. 73, pl. 9, f. 3, 3a. Worthen's note, p. 73, also calls this a variety of *Zaphrentis spinulosa* Edwards and Haime. Another label with the specimen reads

- "Zaphrentis spinulosa* Milne-Edwards. (Type of *Zaphrentis chesterensis* Worthen). Dr. C. Rominger rev. 1892."
- Zaphrentis cliffordana*** ISGS (ISM) 2570
Edwards and Haime **Figured specimen**
Kinderhook Group; Miss.
Monroe Co., Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 75, pl. 10, f. 1b. (Specimens figured on pl. 10, f. 1 and 1a were missing in 1944 when Easton studied them, and still in 1961. LSK)
- = *Triplophyllites exiguus* (Miller) in Easton, W.H., 1944, I.S.G.S. Rept. Inv. 97, p. 40.
- Zaphrentis cylindracea*** Worthen ISGS (ISM) 2561
Chester Group; Miss. **Holotype**
Chester, Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 78, pl. 9, f. 5, 5a.
- Zaphrentis dalei*** Edwards ISGS (ISM) 2556-A/C
and Haime **2556-A = Spec. Fig'd.,**
Lower or Warsaw division of the **pl. 10, f. 12, 12a**
St. Louis limestone; Miss. **2556-B/C - Unfig'd.**
Warsaw, Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 71, pl. 10, f. 12, 12a. Description in text, p. 71, given as *Z. spinulifera* Hall.
- Zaphrentis illinoiensis*** Worthen ISGS (ISM) 2562
Keokuk limestone; Miss. **Holotype**
Near Plymouth, Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 77, pl. 9, f. 4, 4a.
- Zaphrentis lanceolatus*** Worthen ISGS (ISM) 2572-A/B
Warsaw beds; Miss. **Syntypes**
Coalsburg, Ky. **2572-A = Worthen, pl. 10, f. 4, 4a**
Collected by E.O. Ulrich **= Easton, "holotype" (lectotype),**
pl. 59, f. 8a-c
2572-B = Worthen, pl. 10, f. 4b
= Easton, pl. 60, f. 10a-c
- Worthen, A.H., 1890, GSI v. 8, p. 76, pl. 10, f. 4, 4a, 4b.
- 2572-A = *Triplophyllites (Homalophyllites) compressus* var. *lanceolatus* (Worthen) in Easton, W.H., 1951, Jour. Paleol., v. 25 (3), p. 401, pl. 59, f. 8a-c. Easton called this specimen the holotype (for lectotype).
- 2572-B = *Triplophyllites (Triplophyllites) clinatus* (Greene) 1904, in Easton, W.H., 1951, Jour. Paleol., v. 25 (3), p. 395, 401, pl. 60, f. 10a-c. On p. 396 Easton gave the catalog number as 2573 instead of 2572 (= 2572-B) by error.
- Zaphrentis parasitica*** Worthen ISGS (ISM) 2571
Kinderhook Group; Miss. **Holotype**
Clarksville, Mo.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 79, pl. 10, f. 5, 5a.
- = *Neozaphrentis parasitica* (Worthen), identified by W.H. Easton, 1949.
- Zaphrentis pellaensis*** Worthen ISGS (ISM) 2605-1/4
St. Louis Group; Miss. **Syntypes**
Pella, Iowa **2605-1 = Pl. 9, f. 6, 6a**
Collected by A.H. Worthen **2605-2 = Pl. 10, f. 11, 11a**
2605-3/4 - Unfig'd.
- Worthen, A.H., 1890, GSI v. 8, p. 74, pl. 9, f. 6, 6a; pl. 10, f. 11, 11a.
- Zaphrentis reversa*** Worthen ISGS (ISM) 2567
Warsaw beds; Miss. **Holotype**
Near Columbia, Monroe Co., Ill.
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 78.
- = *Triplophyllites (Homalophyllites) reversa* (Worthen) in Easton, W.H., 1951, Jour. Paleol., v. 25 (3), p. 398, pl. 61, f. 9a, b. Identification by W.H. Easton, 1949.
- Zaphrentis spinulifera*** Hall
See *Zaphrentis dalei* Edwards and Haime
- Zaphrentis spinulosa*** Edwards ISGS (ISM) 2559-A/B
and Haime **2559-A = Fig'd. specimen,**
Chester limestone; Miss. **pl. 10, f. 6, 6a**
Chester, Ill. **2559-B - Unfig'd.**
Collected by A.H. Worthen
- Worthen, A.H., 1890, GSI v. 8, p. 73, pl. 10, f. 6, 6a. Worthen's note, p. 73, calls *Z. chesterensis* Worthen a variety of *Z. spinulosa* Edwards and Haime.
- Zaphrentis ulrichi*** Worthen ISGS (ISM) 2573-A/D
Warsaw beds; Miss. **Syntypes**
Coalsburg, Ky. **2573-A = Worthen, fig'd. syntype,**
Collected by E.O. Ulrich **pl. 10, f. 10, 10a**
= Easton, "holotype" (lectotype),
pl. 60, f. 11a-c
2573-B = Worthen, unfig'd. syntype
= Easton, "paratype" (paralectotype)
2573-C = Worthen, unfig'd. syntype
= Easton, unidentified
- Worthen, A.H., 1890, GSI v. 8, p. 76, pl. 10, f. 10, 10a.
- = *Hapsiphyllum ulrichi* (Worthen) in Easton, W.H., 1951, Jour. Paleol., v. 25 (3), p. 390, pl. 60, f. 11a-c. Easton's note with ISGS (ISM) 2573-D identifies it as *Triplophyllites*, and states "This specimen probably belongs with some other lot of species. It is not *Z. ulrichi* and I doubt if Worthen ever thought it was. W.H. Easton, 1949."
- Zaphrentis varsoviensis*** Worthen ISGS (ISM) 2557-A/F
Keokuk limestone, Miss. **Syntypes**
Warsaw, Ill. **2557-A = Fig'd. syntype**
Collected by A.H. Worthen **2557-B/F = Unfigured**
- Worthen, A.H., 1890, GSI v. 8, p. 78, pl. 10, f. 9, 9a.
- Zeacrinus? armiger*** Meek ISGS (ISM) 1897
and Worthen **Holotype**
Chester Group; Miss.
Bay City, Pope Co., Ill.
- Meek, F.B., and A.H. Worthen, 1870, Acad. Nat. Sci. Philadelphia Proc., p. 27; Meek and Worthen, 1873, GSI v. 5, p. 547, pl. 21, f. 3a-b.

= *Tholocrinus armiger* (Meek and Worthen) in Bassler and Moody, 1943, p. 710.

Zeacrinus orbicularis (Hall)
See *Eupachyrinus orbicularis* (Hall)

Zeacrinus pikensis Worthen ISGS (ISM) 2462
Lower Burlington ls.; Miss. **Holotype**
Montezuma, Pike Co., Ill.

Worthen, A.H., 1882, Illinois State Mus. Nat. Hist. Bull. 1, p. 29;
Worthen, 1883, GSI v. 7, p. 304, pl. 30, f. 3. The labels and entry
in the old Ill. State Mus. catalog were changed to *Z. troostanus* Meek and Worthen, but not so published so far
as I can determine. LSK, 6/27/78.

= *Eratocrinus pikensis* (Worthen) in Bassler and Moody, 1943,
p. 728.

Zeacrinus troostanus Meek and Worthen
See *Zeacrinus pikensis* Worthen

Zittelella inosculata Ulrich ISGS (ISM) 2656
and Everett **Figured syntype**
25 feet above base of
Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 271, pl. 5, f. 6a
(specimen shown as f. 6 is missing).

Zittelella lobata Ulrich ISGS (ISM) 2647
and Everett **Figured syntype**
25 feet above the base of
the Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 270, pl. 4, f. 3a
(specimen shown as fig. 3 is missing).

See also USNM 46575, "Figured sections of cotype...pl. 4, f. 3b,
3c," *vide* Schuchert's 1905 catalog.

Zittelella trentonensis (Worthen)
See *Cnemidium? trentonensis* Worthen

Zittelella typicalis Ulrich ISGS (ISM) 2640-1/2
and Everett **Figured syntypes**
25 feet above the base of
the Trenton limestone; Ord. **2640-1 = Pl. 5, f. 3**
Near Dixon, Lee Co., Ill. **2640-2 = Pl. 5, f. 5, 5a**
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 268, pl. 5, f. 3, f.
5, 5a.

See also USNM 46576, "Figured sections of cotype...pl. 5, f. 3a,
3b," *vide* Schuchert's 1905 catalog.

Zittelella typicalis var. ISGS (ISM) 2657
pistilliformis Ulrich and Everett **Unfigured syntype?**
25 feet above the base of
the Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 269. (See pl. 5,
f. 4. This is not the specimen figured, which is missing, but
is probably an unfigured syntype.)

Zittelella typicalis var. ISGS (ISM) 2655
subrotunda Ulrich and Everett **Figured syntype**
25 feet above the base of
Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 269, pl. 5, f. 2,
2a.

Zittelella typicalis var. ISGS (ISM) 2640-3
turbinata Ulrich and Everett **Figured syntype**
25 feet above the base of
Trenton limestone; Ord.
Near Dixon, Lee Co., Ill.
Collected by Dr. Oliver Everett

Ulrich, E.O., and Oliver Everett, 1890, GSI v. 8, p. 269, pl. 5, f. 7,
7a.

